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Hold the Dip

Portfolio Solutions Group

Executive Summary

"Buy the Dip" has become a popular investment mantra over the past five years. In this article, we look at the longer term and ask a simple question: does it beat "buy and hold"? The short answer is no. One reason is that buy the dip tends to face a headwind—it's usually positioned opposite momentum. If investors want to add value through timing market entry and exit points, history shows it's better to align with momentum than to buy the dip, by following the trend.[1]

[1] Though a huge disclaimer is necessary: We believe in trend following (see for example Moskowitz et al [2012], Asness et al [2013], Hurst et al [2017], and Asness et al [2017]) but would take very little risk on any single position, preferring to diversify across many—and even then, no directional (or otherwise!) strategy is anywhere near perfect.

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About the Portfolio Solutions Group

The Portfolio Solutions Group (PSG) provides thought leadership to the broader investment community and custom analyses to help AQR clients achieve better portfolio outcomes.

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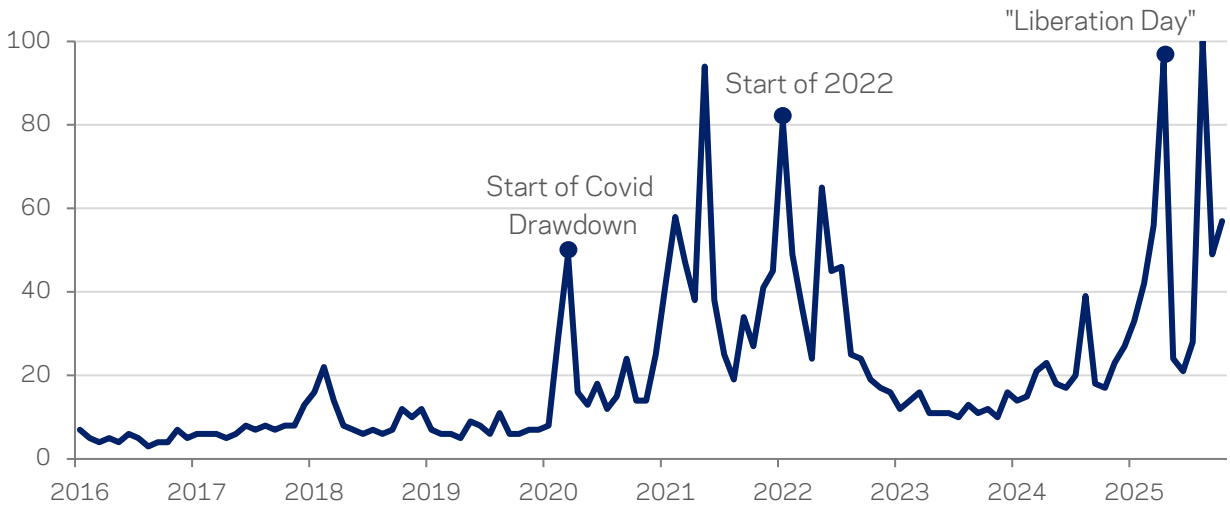
Introduction

Contrarian investing has been around for centuries, but a particular expression of it, "Buy the Dip" (BTD), entered the mainstream around 2020. This simple strategy of buying an asset after a fall in its price has captured widespread attention across social and traditional media, drawing interest from retail traders and institutional investors alike.[2]

BTD is not foolproof. By design, it performs well when market declines are brief, but poorly when declines mark the beginning of a prolonged drawdown. It's thus not surprising that searches for "Buy the Dip" surged following the short-lived COVID-19 drawdown in 2020 and fell dramatically when 2022's dip stretched into an extended drawdown (**Exhibit 1**). Interest in BTD has spiked once again in 2025, likely sparked by the brief "Liberation Day" sell-off in April and the strong rebound in asset prices that followed.[3]

Exhibit 1: Interest in BTD Tends to Spike After Short-Lived Drawdowns
Google search activity for "Buy the Dip," October 2015 - October 2025



Source: AQR, Google Trends. Google Trends data displays relative search interest from a sampled subset of Google searches, normalized by total searches for the selected region and time, and indexed 0-100 (i.e. 100 = peak popularity).

[2] See for example "Retail Investors Reap Big Gains from 'Buying the Dip' in US Stocks." (Financial Times), "A New Generation of 'Buy the Dip' Investors Is Propping Up the Market." (Wall Street Journal), "Wall Street Is Buying the Tech Dip." (Barron's).

[3] See for example "Individual Investors Buy the Dip — Again." (Wall Street Journal), and "The 'Buy the Dip' Trade Has Kept Its Allure. Will That Last?" (Wall Street Journal).

Part 1: Testing the Longer-Term Performance of BTD

Evaluating the efficacy of BTD has a few challenges. The first is conceptual: Buying a positive long-term expected return asset, like the stock market, is by definition a good long-term strategy. You cannot just show that "buying the dip" eventually works out for a particular dip. You cannot just say "if prices will one day be higher, then I should buy the dip," as the belief that prices will eventually go up was also true before, during, and after the dip. This type of misconception seems to drive a fair amount of discussion of this strategy.

For "buying the dip" to even be a meaningful strategy to look at, it must be a relatively *better time than normal* to own stocks for a *relatively modest length period* going forward. If it doesn't have "tactical" but only "strategic" value, all that BTD proponents are saying is "stocks go up over time"—which is not enough of a hurdle to establish if BTD works.

The second challenge is empirical: There are myriad ways to implement a BTD strategy.[4] For example, which asset or security do you apply the strategy to? How deep is a dip? How long is a dip? And after buying the dip, how long do you hold the asset?

In this article, we define and test hypothetical BTD strategies on the S&P 500 (in the appendix we show directionally-similar results for BTD applied to the "Magnificent 7" stocks). We build 196 different combinations of dip depths, dip lengths, and holding periods (4 depths x 7 lengths x 7 holds) as shown in **Exhibit 2**, and assess their performance over the period from January 1, 1965 to September 30, 2025.[5] Each time the BTD strategy has a buy signal (i.e., a drawdown over a specific trailing period), we buy the S&P 500 and hold it for the duration of the holding period. Otherwise, the strategy is in cash.[6,7,8,9]

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[4] We are not the first to test and evaluate these strategies – see for example Bonini et al (2023) and Ning (2018).

[5] Of course, there are many other permutations for systematic BTD strategies. We focus here on frequencies that we think are relevant to most asset owners (for example, we do not report high-frequency strategies here, as those tend to be more "statistical arbitrage" oriented, and subject to meaningful transactions costs). Due to data availability, the 1965-2025 data series reflects price returns of the S&P 500. Data that uses total returns (i.e., including dividends) goes back only to 1989. Results for BTD are even worse over that shorter period.

[6] Throughout this piece, we proxy cash returns (i.e., the risk-free rate) with the ICE BofA 3M T-Bill Index. "Excess-of-cash" refers to the return in excess of this cash return.

[7] For simplicity, we do not model fees or transaction costs for these strategies. The reader may reasonably assume that such frictions would reduce the performance of these strategies.

[8] We do not explicitly test a strategy that "doubles down" – e.g., by buying the asset after a 5% drop, and then buying even more if the asset falls another 5%. However, results of such strategies would be generally in line with a combination of the 5% dip and 10% dip strategies shown in this article.

[9] Some BTD implementations have very few buy signals (e.g., ones that define a dip as a 20% fall in price). Excluding these does not affect our overall results.

Exhibit 2: Building 196 BTD Strategies

Variable	Definition	What We Test
Depth	By how much did the price fall?	-5%, -10%, -15%, -20%
Length	Over how long did the dip occur?	1 week, 2 weeks, 3 weeks, 1 month, 3 months, 6 months, 1 year
Hold	After buying the dip, how long do you hold the asset?	1 month, 2 months, 3 months, 6 months, 1 year, 3 years, 5 years

Source: AQR. The above selected depths, lengths, and holding periods were chosen to represent a wide range of drawdowns (at round numbers) which have appeared in the history of US equity (S&P 500) returns. For robustness, we also tested Depths based on long-term S&P 500 volatility over each Length (specifically, -1.0, -1.5, -2.0, -2.5 and -3.0 standard deviation moves over each of the seven Lengths), and found similar results to those shown throughout this article. See Footnote 5 for more details. Hypothetical data has certain inherent limitations, some of which are disclosed in the Appendix. For illustrative purposes only.

BTD versus Buy-and-Hold

Buy the Dip strategies will almost certainly lag buy-and-hold over the long term due to the simple fact that the latter is always invested (i.e., always earning the equity risk premium).[10] To test the efficacy of BTD we need to account for this difference, so we start by comparing risk-adjusted returns to these two approaches.

Our first test compares Sharpe ratios of each of the 196 BTD strategies to simply holding the S&P 500 passively. **Exhibit 3** shows the results – each bar below the green line means the BTD strategy produced worse risk-adjusted returns than passive equities. Across all BTD strategies, the average Sharpe ratio was -0.04 less than equities (about a 16% degradation to holding equities passively), with over 60% of BTD implementations underperforming by this metric.[11]

These results are even worse for BTD using more recent data. From October 1989 through September 2025 (the full daily return history for the S&P 500 that includes dividends), the SR of these strategies was -0.27 worse than holding equities passively (a -47% degradation).

Visually, Exhibit 3 might suggest that versions of BTD with longer holding periods (i.e., the right side of each "cluster" of bars) tend to fare better than those with shorter holding periods. Appearances can be deceiving: The average Sharpe ratio of those seemingly-best holding period strategies still shows almost no improvement over passive. There's a practical challenge as well in that it is doubtful many investors would find holding on to such a strategy easy to stick with.[12] Strategies that look (relatively) good *only* after long holding periods may represent an investment "siren song."

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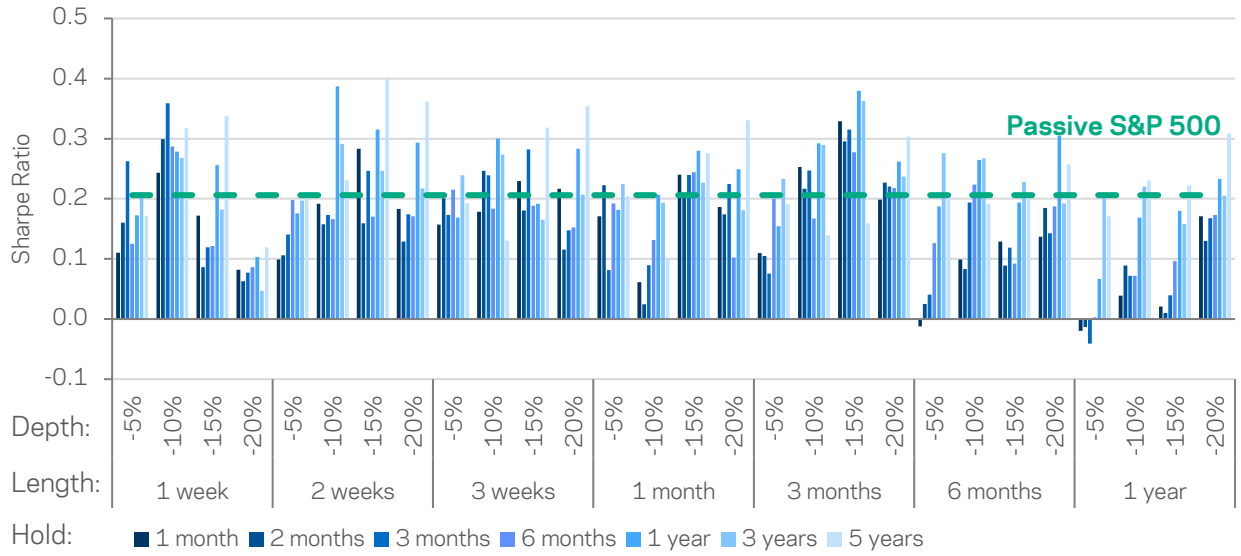
[10] If we were to compare total returns, passive equities would show a +1.1% annual return advantage over the average BTD strategy (and +0.6% versus the 75th percentile BTD strategy, and +1.7% advantage over the 25th percentile BTD strategy).

[11] Adding to this, our analysis does not subtract transaction costs, which would further detract from BTD's performance, particularly for higher-turnover (smaller dip and shorter holding period) implementations.

[12] For instance, using the 1989-2025 data, the average strategy in every single holding period had worse risk-adjusted returns than the 5-year holding period.

Exhibit 3: BTD Earns Lower Risk-Adjusted Returns than Passive

Sharpe Ratio, January 1, 1965 – September 30, 2025



Source: AQR, Bloomberg. Equities are proxied by the price return of the S&P 500 Index. Cash is proxied by the ICE BofA 3M T-Bill Index. Time period based on availability of data. *How to read this chart*: The inner set of horizontal labels (-5%, -10%, -15% and -20%) refers to the depth of the dip; the outer set of horizontal labels (1 week, 2 weeks, etc.) refers to the length of the dip (i.e., how long does the dip last before buying the position). The colors (1 month, 2 months, etc.) refers to how long the position is held for. So, for example, the first bar is a strategy that buys the S&P whenever its price has fallen by 5% over a week, holds the position for 1 month and sells it. The last bar is a strategy that buys the S&P whenever its price has fallen by 20% over a year, holds the position for 5 years and sells it. Results shown are gross of all fees and costs. Hypothetical data has certain inherent limitations, some of which are disclosed in the Appendix. Past performance is not a reliable indicator of future performance. For illustrative purposes only.

BTD Does Not Add Significant "Alpha" to an Equity Allocation

Although a standalone BTD strategy typically underperforms a passive buy-and-hold approach (both in risk-adjusted and total returns), it's worth examining whether BTD can *complement* an existing equity allocation. For example, if BTD is viewed as a form of market timing, there is a possibility that it could help investors tactically increase or decrease exposure at opportune times. In other words, even if BTD is less efficient on its own than buy-and-hold, it may still provide diversification or downside-mitigation benefits when combined with it.[13]

To test this possibility, we regress the excess-of-cash returns of each of our 196 BTD strategies against the excess-of-cash returns of buy-and-hold to find BTD's return adjusted for its average market position, and report results in **Exhibit 4**; the top panel reports the alpha, and the bottom the test statistics.

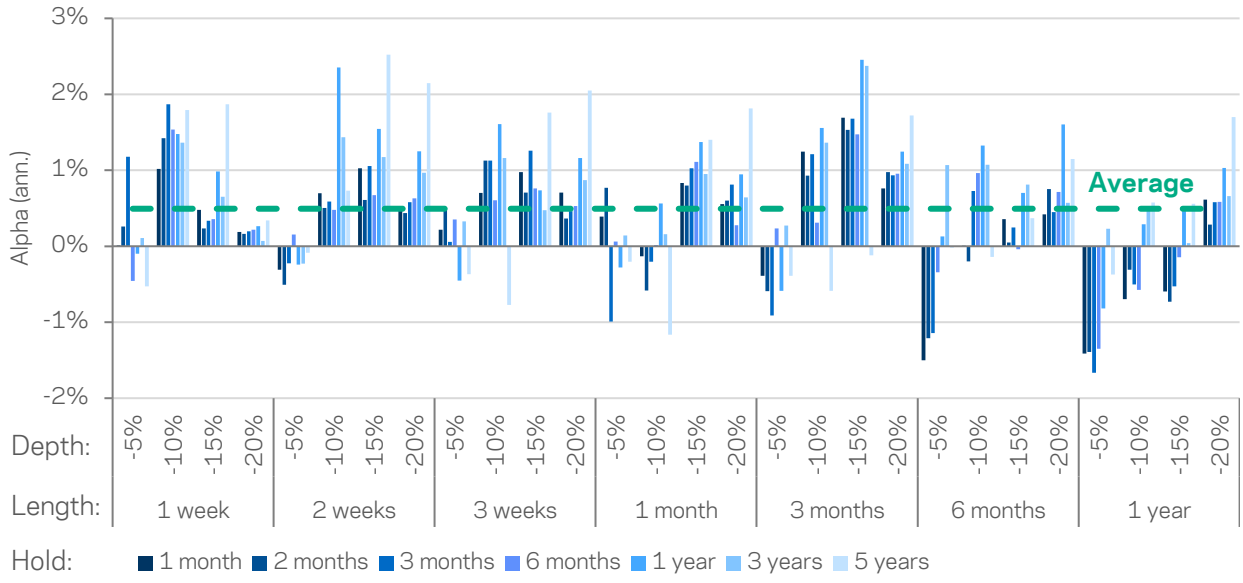
[13] A related topic is whether investors who plan to allocate to equities over time (e.g., dollar-cost averaging) should deviate from a fixed schedule to wait for dips. The short answer here is also no. A full analysis will be the topic of follow-on research, but for now we note that dollar-cost averaging can be expected to have *roughly* the same SR as buy-and-hold, since dollar-cost averaging is a market-entry strategy that by definition is not based on any investment signal. (More precisely, the time-varying allocation of dollar-cost averaging may raise expected volatility and thus slightly degrade SR.) Our analysis in this article implies investors should not expect BTD strategies (in general) to offer an advantage to passive investing, and thus not to dollar-cost averaging either. In other words, investors are generally better off investing when they can to harvest more of the equity risk premium for longer, rather than timing market entries via BTD.

Exhibit 4a shows a 0.5% average alpha across all BTD implementations (dashed line), with plenty of variability around it.[14] Readers may be tempted to focus on specific implementations that appear especially promising and ignore the others, but we note datamining is a bias that's particularly easy when testing nearly 200 strategies. Looking at averages across subsets may be the more conservative way to assess BTD alpha, even among preferred implementations. For example, the average alpha across "dip lengths" that appear most promising (2 weeks and 3 weeks) is 0.7%, not much different than the average of 0.5% across all implementations.

Exhibit 4b reports the statistical significance of the alphas and shows the typical 95th percentile confidence range of +/-1.96 (admittedly too low a bar when testing 196 strategies, as just by chance you should expect some to look statistically significant[15]). Out of all these BTD implementations, only 16 (i.e., only 8%!) cross the conventional threshold of statistical significance, suggesting that BTD as a general approach has no reliable "alpha" relative to owning equities passively.[16]

Exhibit 4: Debatable Alpha from BTD Strategies

A. Alpha (annualized), January 1, 1965 – September 30, 2025



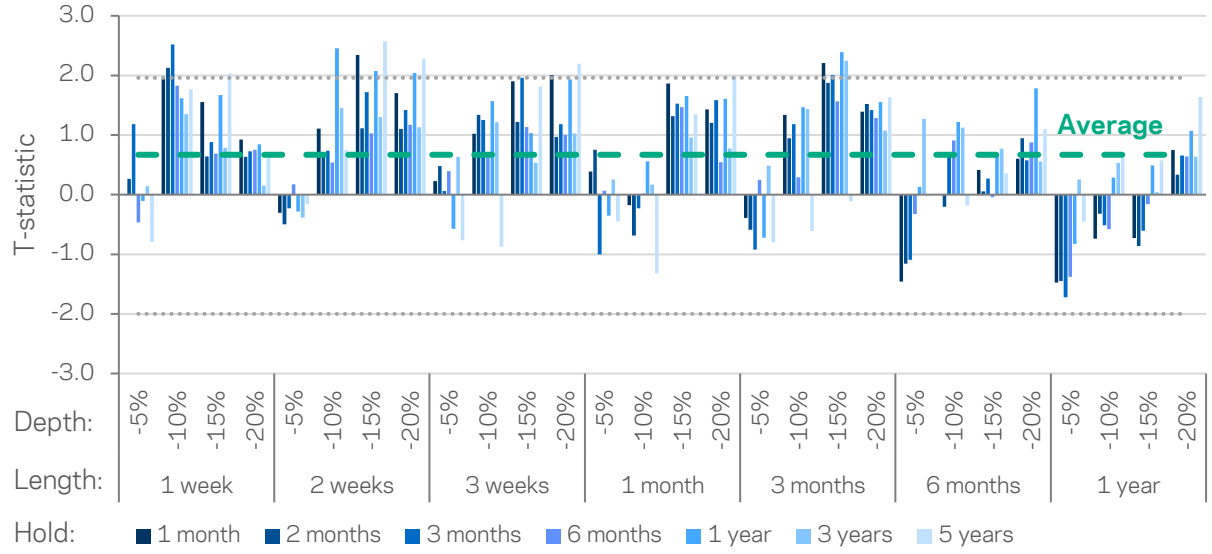
Source: AQR, Bloomberg. Equities are proxied by the price return of the S&P 500 Index. Cash is proxied by the ICE BofA 3M T-Bill Index. Time period based on availability of data. Results shown are gross of all fees and costs. Hypothetical data has certain inherent limitations, some of which are disclosed in the Appendix. Past performance is not a reliable indicator of future performance. For illustrative purposes only.

[14] The distribution of alphas is quite close to normally distributed, with a skew of -0.12 and excess kurtosis of -0.54, suggesting that BTD implementations that look relatively better or worse could simply be due to chance.

[15] For technical readers, these aren't independent strategies, so a simple Bonferroni adjustment does not apply. Instead, given an average pairwise correlation of 0.41 across these strategies, we should adjust the level for statistical significance to be approximately 3.52, which none of these implementations exceeds.

[16] It's worth noting that the t-statistics in Exhibit 4 are close to normally distributed with a skew of -0.26 and excess kurtosis of -0.56. These values are both so small (in addition to the average t-stat being insignificant) that we can't reject that the results in Exhibit 4 are the result of random noise. Even if we were to diversify across all BTD implementations equally, knowing the average alpha won't change, the resulting t-stat becomes a paltry 1.1.

B. Alpha t-statistic, January 1, 1965 – September 30, 2025



Source: AQR, Bloomberg. Equities are proxied by the price return of the S&P 500 Index. Cash is proxied by the ICE BofA 3M T-Bill Index. Time period based on availability of data. Results shown are gross of all fees and costs. Hypothetical data has certain inherent limitations, some of which are disclosed in the Appendix. Past performance is not a reliable indicator of future performance. For illustrative purposes only.

Why the Disappointing Results? BTD is "Value Investing at a Momentum Horizon"

It's likely that BTD makes the right trade, but at the wrong horizon.

Two of the most-studied phenomena in markets are value and momentum: the tendency for cheap assets to beat expensive ones, and for recent winners to continue to outperform recent losers. While much research has focused on these as cross-sectional, or *relative value*, ideas, some studies have extended the value and momentum framework into the time-series, or as *directional* strategies.[17]

Viewed directionally, momentum is the continuation of a trend, while value usually implies reversal. Empirically, trends in financial markets have tended to play out over periods of weeks and months, whereas deviations from estimates of fair value have tended to take years to reverse, often following the business cycle (or even longer frequencies). These tendencies may explain much of the disappointing performance of the BTD strategies shown in Exhibit 3, particularly for those with holding periods shorter than a few years.[18] As long as markets exhibit momentum, BTD is effectively positioned against the prevailing trend. In other words, BTD investors, especially for holding periods of less than a few years, tend to bet on reversals when they should (in general) be betting on continuation. They are, in a sense, value investors at a momentum horizon.

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[17] For seminal research on the cross-sectional framework, see Fama and French (1992) and De Bondt and Thaler (1985). See Moskowitz et al (2012), Asness et al (2013), Hurst et al (2017), and Asness et al (2017) for examples of the time-series application.

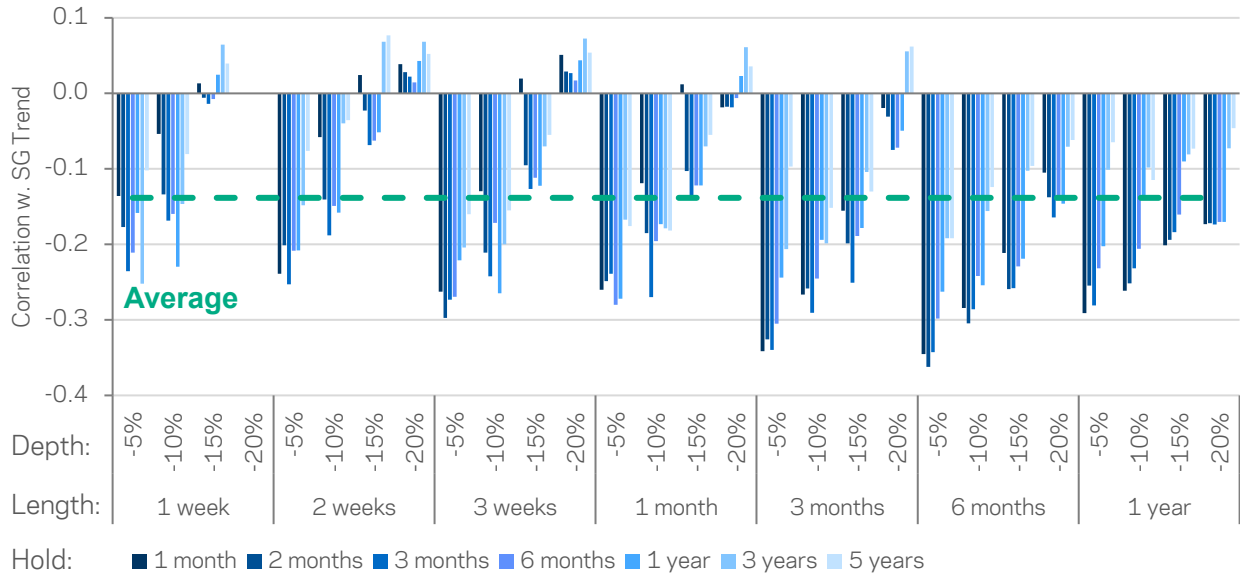
[18] For instance, examining BTD strategies that use a 5-year dip length (i.e., to be a "value investor at a value horizon"), yields a higher average Sharpe ratio of 0.21 and stronger average alpha of 0.8% though only at a 1.0 significance. (Though it's unlikely many investors would consider a *5-year* drawdown to be a "dip"!)

We can see this empirically in **Exhibit 5**, which shows the correlation of each BTD strategy (beta-adjusted[19]) to the SG Trend Index, an equal-weighted return of the 10 largest trend-following hedge funds.[20, 21] Consistent with the academic research, SG Trend has delivered over time—producing an annualized 4.0% excess-of-cash return since 2000 and a 4.7% alpha to equities, with a (near-significant) t-statistic of 1.8.[22] Given this long-run performance, any strategy with a negative correlation to trend faces a long-term headwind.

Not surprisingly, a negative relationship is exactly what we find in the data; the average correlation of all BTD strategies to trend-following is -0.14, which while not large, is remarkably consistent across implementations.[23]

Exhibit 5: BTD Is Generally "Anti Trend-Following"

Correlation of SG Trend vs. 189[24] beta-adjusted BTD strategies, January 1, 2000 – September 30, 2025



Source: AQR, Bloomberg. Above shows the correlation of the beta-adjusted returns of every BTD strategy to the SG Trend Index. Equities are proxied by the S&P 500 Total Return Index. Time period is based on availability of data (SG Trend data begins in January 2000). We beta-adjust the BTD strategy to isolate the "pure" timing component of BTD by subtracting the full-sample beta. We only show strategies with at

[19] Trend-following strategies are designed to have no persistent market exposure, so their returns primarily reflect alpha, not beta. By contrast, a BTD strategy can be thought of as seeking two sources of returns: 1) "alpha" from its market timing component, and 2) "beta" from its average long bias (the 189 BTD strategies we tested had an average market beta of 0.41 over this period). To make a fair comparison, we remove this full-sample beta from BTD returns to isolate their timing component, while trend-following requires no such adjustment.

[20] SG Trend Index is an equally-weighted, annually rebalanced net-of-fee index of the top 10 largest trend-following CTAs (by AUM).

[21] For robustness, we also tested a simple 12-month trend-following strategy on the S&P 500 index and found similar results for all relevant exhibits.

[22] The alpha is larger than the average return because the SG Trend Index has realized a slight negative correlation to the S&P 500 since inception.

[23] Nor *should* the correlation be a large negative value, as the BTD strategies hold the S&P 500 only, whereas trend-following strategies typically allocate globally across multiple stock markets, bond markets, commodities and currencies. Our high-confidence guess is if we had SG Trend returns on only their US stock market positions, these correlations would be far more negative.

[24] Selecting BTD strategies with at least one buy signal drops 7 of the 196 implementations over this period, as this millennium has not yet produced a 20% dip in the S&P 500 over a 1-week period.

least 1 buy signal over this period (189 of 196). Results shown are gross of all fees and costs. Hypothetical data has certain inherent limitations, some of which are disclosed in the Appendix. Past performance is not a reliable indicator of future performance. For illustrative purposes only.

Curiously, BTD strategies make precisely the opposite mistake described in Asness (2014) of "being a momentum investor at a value horizon," i.e. 3-5-year performance chasing:

> When we rely on three- to five-year periods to make decisions…we aren't just using data meaninglessly; rather, we are using data backwards. Essentially, with a disciplined approach, value and momentum are both good long-term strategies, but you don't want to be a momentum investor at a value time horizon.

Part 2: Dip Buying Versus Trend Following

Economic theory and empirical evidence suggest that following the trend, rather than buying the dip, is the better (though far from perfect) approach to tactical timing.[25] We test this using the SG Trend Index as our proxy for trend-following, and the BTD strategies from Part 1. We compare these strategies over the full history of the SG Trend Index (January 1, 2000 – September 30, 2025), and during the worst drawdowns for the S&P 500.[26]

Trend-Following Is Overwhelmingly More Efficient Than Dip Buying

On a risk-adjusted basis, we find that trend-following was the more efficient strategy, displaying an average difference in Sharpe ratio of +0.20—striking given the SG Trend index produced "only" a 0.30 Sharpe ratio over this period.[27,28]

In **Exhibit 6**, we compare the annualized alphas and t-statistics of BTD to that of SG Trend. Panel A shows that trend-following's alpha is much higher than the BTD average (4.7% versus 0.3%), and higher even than the best of the 189 BTD implementations over this nearly-26-year period. In Panel B we compare statistical significance, with trend-following producing a near (but-not-quite) significant test statistic of 1.8 (compared to BTD's average of 0.3).

[25] See for example Moskowitz et al (2012), Hurst et al (2017), Babu et al (2020), AQR (2022), and Brooks et al (2023).

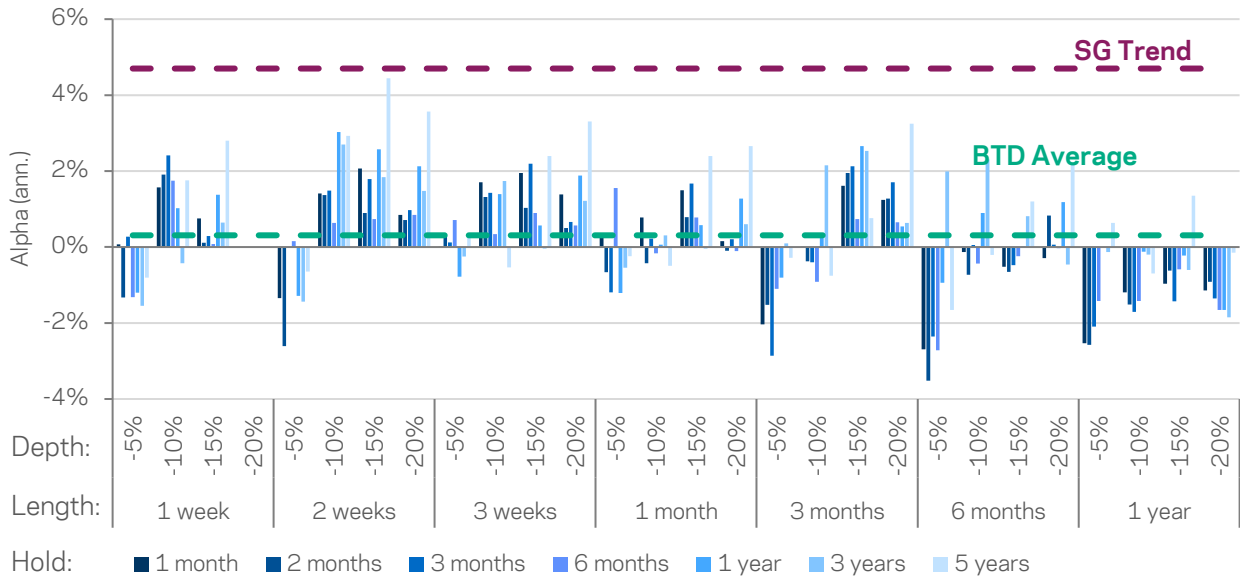
[26] We use the S&P 500 Total Return Index as our proxy for equities over the common period to reflect reinvestment of dividends.

[27] This difference may be somewhat conservative, as the SG Trend Index is net of transactions costs and fees, whereas BTD is gross of all costs.

[28] Over much of this period, trend-following strategies realized returns that may have been lower than their "true" ex ante mean, due to fewer large moves in markets than what history tends to produce – see Babu et al (2020).

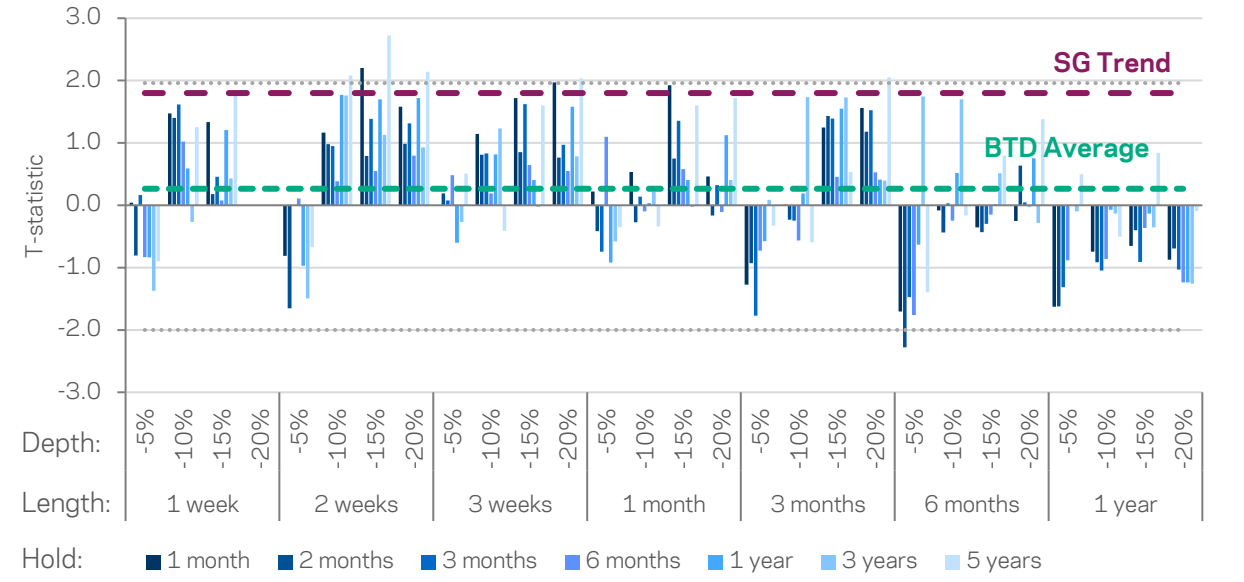
Exhibit 6: Trend Adds Value to Equities Where BTD Cannot

A. Alpha (annualized), January 1, 2000 – September 30, 2025



Source: AQR, Bloomberg. Equities are proxied by the S&P 500 Total Return Index. Time period is based on availability of data. We only show strategies with at least 1 buy signal over this period (189 of 196). Results shown are gross of all fees and costs. Hypothetical data has certain inherent limitations, some of which are disclosed in the Appendix. Past performance is not a reliable indicator of future performance. For illustrative purposes only.

B. Alpha t-statistic, January 1, 2000 – September 30, 2025



Source: AQR, Bloomberg. Equities are proxied by the S&P 500 Total Return Index Time period is based on availability of data. We only show strategies with at least 1 buy signal over this period (189 of 196). Results shown are gross of all fees and costs. Hypothetical data has certain inherent limitations, some of which are disclosed in the Appendix. Past performance is not a reliable indicator of future performance. For illustrative purposes only.

Trend Has Also Outperformed When Most-Needed

While trend-following may in general be the better approach than BTD, its behavior during market downturns is worth highlighting. **Exhibit 7** focuses on downside risk, examining periods in which the S&P 500 declined by more than 20%. The exhibit reports the performance of the S&P 500; the average, 75th percentile and 25th percentile BTD strategies; and the SG Trend Index.[29] Consistent with its convex payoff profile, trend-following delivers strong outperformance during major drawdowns. In contrast, most implementations of BTD tend to maintain a long positioning during extended declines, leading to underperformance precisely when investors are least able to bear it.[30]

It is worth noting the single exception for SG Trend in Exhibit 7: February–March 2020. Compared to the other drawdowns, it was by far the shortest—and this goes a long way to explaining Trend's tepid performance. Trend-following strategies tend to outperform during prolonged market declines, when trends have time to develop, but they are less effective in sharp, short-lived selloffs.[31]

From an investor's perspective, the difference between a long or short drawdown can matter. For two drawdowns of equal magnitude, it is the prolonged ones, not the short drops, that pose the greater threat to most investors' ability to meet their longer-term return objectives.[32]

Exhibit 7: Trend Has Performed When Most-Needed

Cumulative return during worst drawdowns for the S&P 500, January 1, 2000 – September 30, 2025

Period	S&P 500	BTD (Average)	BTD (75th Percentile)	BTD (25th Percentile)	SG Trend
Oct 10, 2007 - Mar 09, 2009	-55.3%	-34.0%	-28.5%	-22.6%	31.7%
Sep 02, 2000 - Oct 09, 2002	-47.4%	-14.7%	7.8%	7.8%	51.4%
Feb 20, 2020 - Mar 23, 2020	-33.8%	-17.3%	-9.5%	-9.5%	-2.4%
Jan 04, 2022 - Oct 12, 2022	-24.5%	-7.7%	0.7%	0.7%	33.9%
Average	**-40.2%**	**-18.4%**	**-7.4%**	**-5.9%**	**28.6%**

Source: AQR, Bloomberg. Equities are proxied by the S&P 500 Total Return Index. Time period is based on availability of data. Above shows cumulative returns during the worst drawdowns (deeper than -20%) for the S&P 500 over the full period. BTD (Average) is the simple average of returns across all189 configurations of the strategy with at least 1 buy signal over this period. BTD (75th Percentile) and BTD (25th Percentile) are based on full-sample risk-adjusted returns (i.e., even though the 25th percentile BTD strategy fared better than the average BTD strategy during drawdowns, it delivered worse risk-adjusted returns over the full 25 years), across only the 189 strategies with at least 1 buy signal. SG Trend Index is shown net of costs and fees, S&P 500 and BTD strategies are shown gross of all costs. Hypothetical data has certain inherent limitations, some of which are disclosed in the Appendix. Past performance is not a reliable indicator of future performance. For illustrative purposes only.

[29] BTD percentiles based on full-sample risk-adjusted returns.

[30] As with conventional tail risk-hedging strategies (e.g., options-based insurance) trend tends to be long volatility, whereas BTD is biased to short volatility. However, unlike most forms of long-volatility strategies, trend has historically experienced positive long-term returns.

[31] A more recent example is March-April 2025's "Liberation Day" equity market sell-off and underperformance of SG Trend Index.

[32] See for example McQuinn et al (2020). Unlike options-based hedging strategies, which are also generally long volatility, trend-following has tended to deliver long-term positive returns.

Part 3: Combining the Alpha with Some Beta

Exhibit 4 showed that BTD strategies tend to have little (if any) alpha, and thus most of their long-term returns can be attributed to "beta," or market exposure. In contrast, the trend-following index, with a -0.1 correlation to equities, has no long-term beta, and thus (from an equity market perspective) is all "alpha." Alpha is by definition a good thing, but some investors might not be willing to give up market exposure in exchange for it.[33] For example, in a bull market a BTD strategy might outperform trend-following simply due to tailwinds from having full equity beta.

Managers and investors are increasingly addressing this trade-off head-on, by offering both "alpha-only" implementations of strategies, and ones with passive market exposure added on—i.e., by building strategies that strategically combine alpha with beta.[34] From a portfolio perspective, this allows investors to add a source of expected alpha without having to reduce their beta to fund it.

To show the impact of combining alpha with some beta in a portfolio context, **Exhibit 8** reports standard performance statistics for five portfolios: a Global 60/40 stock/bond portfolio, and four others that take 20% from the 60/40 portfolio *pro rata*, and allocate to:

- The average BTD strategy
- The SG Trend Index
- A "Total Return" Trend Strategy (0.65 × SG Trend Index + 0.50 × equity markets)
- A "Portable Alpha" Trend Strategy (0.65 × SG Trend Index + 1.00 × equity markets)

Exhibit 8: Should Your Alpha Include Some Beta?
January 1, 2000 – September 30, 2025

	Global 60/40	+20% to BTD	+20% to SG Trend	+20% to Total Return Trend	+20% to Portable Alpha Trend
Average Excess Return	4.2%	4.0%	4.1%	4.4%	5.0%
Volatility	9.3%	8.8%	7.8%	9.0%	10.4%
Sharpe Ratio	0.45	0.46	0.53	0.49	0.50
Equity Beta	0.61	0.57	0.48	0.58	0.68
Worst Drawdown	-33.6%	-32.8%	-24.6%	-31.1%	-35.9%

Source: AQR, Bloomberg. Global equities are proxied by the MSCI World Index and global bonds by the Bloomberg Global Aggregate Index. Cash is proxied by the ICE BofA 3M T-Bill Index. Time period is based on availability of data. Allocations to BTD and the three SG Trend

[33] Ilmanen and Maloney (2025) examine how and why investors struggle to stay invested in diversifiers because of the "rearview mirror" problem following equity bull markets, performance chasing, and other behavioral biases.

[34] See for example Asness (2025) and Cao and Hecht (2025).

implementations are funded pro-rata from the global 60/40 stock/bond portfolio. The BTD allocation is the average result of a 20% allocation to each of the 189 BTD strategies with at least 1 buy signal over this period. "Total Return Trend" and "Portable Alpha Trend" deduct 0.25% and 0.50% per year respectively as a proxy for average financing costs for the equity market exposure. The gross performance shown does not reflect the deduction of investment advisory fees and other expenses, which would reduce an investor's actual return. Hypothetical data has certain inherent limitations, some of which are disclosed in the Appendix. Past performance is not a reliable indicator of future performance. For illustrative purposes only.

The different portfolio impacts of employing each trend-based strategy can be summarized as:

- **+20% to Trend**: Compared to Global 60/40 and the BTD portfolio, this implementation reduced risk (lower volatility, lower equity market sensitivity, and less-severe worst drawdown) while maintaining returns. From a Sharpe ratio perspective, this allocation can be thought of as improving the overall portfolio primarily by reducing the denominator.
- **+20% to Trend Total Return**: This implementation delivered higher returns than Global 60/40 and the BTD portfolio, but with similar risk statistics (volatility, equity exposure and drawdowns). From a Sharpe ratio perspective, this can be thought of as improving the overall portfolio primarily by increasing the numerator.
- **+20% to Portable Alpha Trend**: This implementation achieved higher returns (more than 20% per annum on average compared to the starting portfolio) with modestly higher volatility and equity exposure (+10% compared to starting portfolio), and a slightly deeper worst drawdown (owing to the higher equity exposure). This implementation is about increasing the numerator more than the denominator and may be appropriate for investors with a greater risk tolerance.[35]

Each of these implementations of trend-following offers a different set of potential improvements to portfolios with stock and bond exposure, and over portfolios where investors may be considering adding some exposure to BTD.

Finally, it's worth reiterating that just as the BTD strategy shown above is an average of many implementations, so too is the SG Trend Index an average of trend-following managers (albeit only 10). Just as we've shown in this article dispersion across different BTD implementations, there is also dispersion across different trend-following managers. We believe our findings in this article can serve as a useful baseline for the expected returns of these types of strategies, but we encourage investors to adjust return expectations based on their manager conviction.

Concluding Thoughts

"Buy the Dip" has captured the imagination of many investors, offering an intuitive way to purchase assets at a discount. Unfortunately, it doesn't hold up in the data – one reason is that BTD tends to be on the opposite side of momentum. This helps explain why BTD strategies have tended to do particularly

[35] Practically, investors considering a portable alpha approach may be more likely to fund it from equities, as opposed to pro-rata (which we report here for consistency with the rest of the exhibit). This would act to maintain, rather than raise, long-term portfolio equity exposure.

poorly over shorter time frames. Even longer-term (relative) successful BTD strategies may have more to do with the average long-term return of equities than with the decision of which dip to buy and when.[36]

Another issue is that BTD strategies tend to underperform during extended market downturns—precisely when most investors are least able to bear additional risk. We show that investors are likely to find greater success with trend-following, particularly during periods when it matters most. While historically trend-following may have lagged in bull markets, new implementations such as "portable alpha" are designed to help investors seek alpha, while not having to give up on beta.

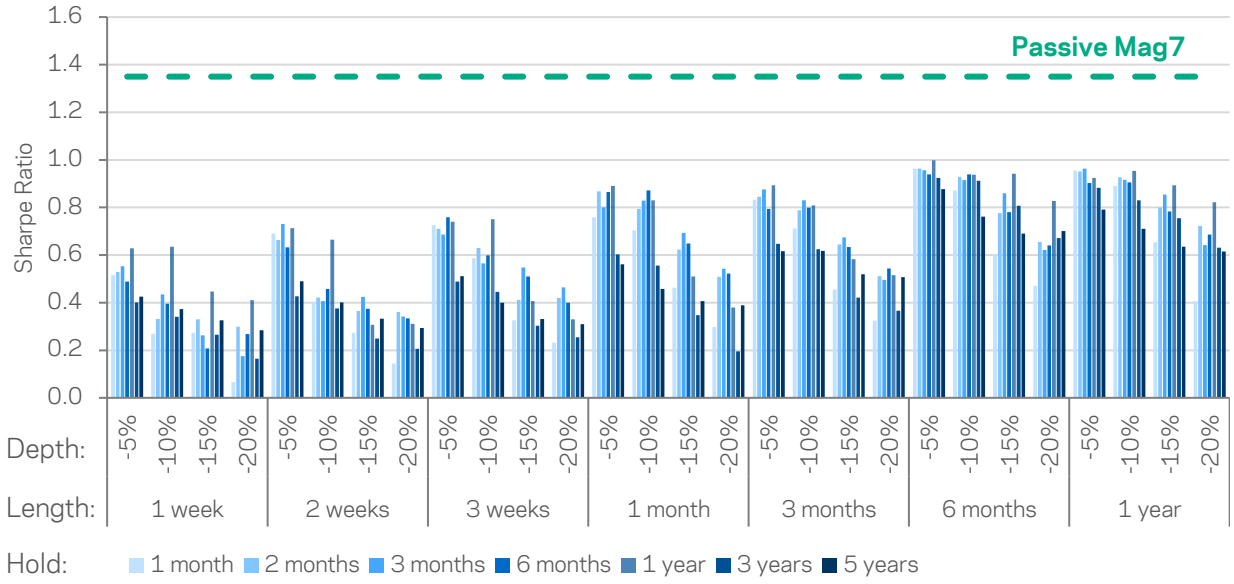
[36] Along these lines, if BTD simply means "equities always recover and always eventually go up," then perhaps a more efficient strategy is simply to own more equities in a strategic allocation, but this has nothing to do with dips. (This is similar to our critique of Buffered Funds (Asness et al 2025) where they underperformed proper comparisons to stocks plus cash).

Appendix: Buy the Dip and the "Magnificent Seven"

Much of the recent interest in BTD strategies has stemmed from a handful of successful stocks. In **Exhibit A1**, we repeat our BTD analysis, but applied to Magnificent 7 stocks.[37] Specifically, we run every single BTD strategy from earlier in this paper, but seven times each: once for each stock. As with the main section of this article, we include every BTD implementation since all buy the dipped asset at least once. We then take an average of them as the returns of a "Magnificent 7 BTD" strategy.

In this universe, BTD is an inferior strategy to buy-and-hold when applied to these seven stocks.[38]

Exhibit A1: BTD Underperforms in Smaller "Magnificent 7" Universe
Sharpe Ratio, May 1, 2012 – September 30, 2025



Source: AQR, Bloomberg. Equities are proxied by Google, Amazon, Apple, Meta, Microsoft, Nvidia and Tesla stock; results are a simple average over the seven stocks. Cash is proxied by the ICE BofA 3M T-Bill Index. Time period is based on the stocks' common period. The gross performance shown does not reflect the deduction of investment advisory fees and other expenses, which would reduce an investor's actual return. Hypothetical data has certain inherent limitations, some of which are disclosed in the Appendix. Past performance is not a reliable indicator of future performance. For illustrative purposes only.

[37] Which, at the time of this writing, are: Google, Amazon, Apple, Meta, Microsoft, Nvidia and Tesla.

[38] Not shown for brevity: alphas of BTD here against buy-and-hold are also indistinguishable from zero.

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