The Cost of Being Undisciplined

A Look At The Importance of Sticking With Your Investment Plan

BY JOHN LEWIS CMT, SENIOR PORTFOLIO MANAGER, NASDAQ DORSEY WRIGHT

Having a disciplined investment process is very important. Losing control of your sell process can have meaningful and detrimental effects on the long-term performance of a simple momentum strategy. We attempt to quantify those effects by simulating a hypothetical investor haphazardly selling high momentum stocks rather than following a disciplined process.

Discipline is often talked about, but rarely achieved over long periods of time. Take weight loss, for example. Most of us could stand to lose a few (or more) pounds so we can be healthier and lead a better life. The formula is rather simple: burn more calories than you take in. All you really have to do is some combination of exercising more and eating less (or healthier). But that simple formula is virtually impossible for most people to follow over time. There is an entire multi-billion dollar industry devoted to providing some gimmick that will keep you on track or accelerate your weight loss.

Discipline is often talked about in the investment industry. Study after study has shown that investors are their own worst enemies and earn returns much less than they could have because they make poor decisions at inopportune times. In other words, they lack discipline. Professional investors are also plagued by deviating from their plans at the wrong times. Morningstar calculates investment returns at a fund level and at an investor level. The “investor level” returns take in to account fund flows and attempts to estimate the returns of the average investor in the fund. When fund returns are higher than investor returns, investors have poor timing and are buying the fund at tops and selling at bottoms. For the vast majority of funds, the fund returns are better than the investor returns. This holds true for funds many would consider “buy-and-hold” funds. It isn’t just the specialty funds where this phenomenon occurs. What it indicates is many investors don’t have a sound plan, or abandon the plan at the wrong time.

Looking beyond timing fund purchases it becomes more difficult to quantify how a lack of discipline affects investment results. This is especially true for portfolio managers and financial advisors because part of what they are being paid for is to do the things that their clients can’t do! A truly disciplined investment strategy can be followed through all types of different markets, and can add a lot of value over a haphazard approach. Momentum investing is a strategy that buys securities when they are strong and holds them until they are weak. It is the opposite of the classic adage, “Buy low, sell high.” Momentum buys high and sells higher, and has been proven to be one of the most robust investment factors over time along with the much more well-known value factor. If implemented in a disciplined fashion, momentum can be very rewarding. But what if the investor loses discipline? Is it even worth it to attempt a momentum strategy?

Investors buy and sell securities for any number of reasons. Some investors might sell stocks that are up because, “you can’t lose money taking a profit,” while they also hold securities with unrealized losses because, “it isn’t a loss if it’s only on paper.” These rationales sound good, but don’t help generate returns over time. Investors also tend to fall in love with their stocks and come up with any number of reasons not to sell them. Whether they have a relative that works for the company, they like the product, or they think the CEO has better ideas than anyone else, the blind attachment to certain stocks has a dramatic effect over time.
We have written several papers demonstrating the power of momentum strategies over time. These studies have shown that as long as an investor can stick to the process there is a very high probability of outperformance over time. But what if we alter the sell side of the equation? Instead of a normal momentum process that sells stocks when they become weak, what if we sell stocks at random? That would answer what happens when investors lose discipline on the sell side, and most likely approximates most investor’s actual returns. We can’t be sure exactly why most investors wind up selling stocks, but we can surmise that most of the time it isn’t optimal. One nice thing about momentum is it can be tested in a mechanical fashion. It only requires historical price data to generate investment decisions. For this test, we use a popular definition of momentum that we will refer to as: 12-1. We rank each stock in the universe by the last 12 months of price performance less the most recent month (to avoid short-term mean reversion). This method is a widely accepted measure of momentum, and can be found in many academic papers. Stocks with the highest 12-1 score have the most strength and get the highest ranks. Next, we percentiled all of the scores so the buy and sell thresholds could be predetermined. Our universe of stocks is the top 1000 market capitalization stocks in the U.S. Each year we take the top 1000 names and use that universe for the upcoming twelve months. This helps us avoid very small stocks that would be difficult to trade. This universe is similar to the NASDAQ US Mid Large or the Russell 1000 Index.

The portfolios are examined at each calendar month end. We create portfolios of 50 stocks, which is a reasonable number of holdings for retail portfolios. To be eligible for inclusion in the portfolio, a stock must be in the top decile of the 12-1 ranks. Remember that our universe is 1000 stocks, so 100 of them qualify for inclusion. Since we are forming portfolio with only 50 stocks, we need a way to pick which 50 we will use. We do this at random and create 100 different portfolios, and run them from 1989-2018. This will tell how robust the buy process is. If we can generate solid returns using random baskets of high momentum stocks we know the process is robust and doesn’t rely on one or two outliers to make it work. We have two different methods to sell stocks. The first represents a very disciplined investor who sells whenever the rank of a stock falls out of the top quartile of 12-1 ranks. Each month end, any stock that is ranked below the top quartile is sold and the random process discussed above is used to replace the securities that have been sold. Some months there will be no sales, and in other months there will be a lot of sales. It totally depends on each security’s rank. But the process is extremely disciplined. Only the highest momentum stocks are purchased, and they are sold immediately when they become weak. This will be considered our baseline, and demonstrates the results that can be generated using a disciplined momentum strategy.

The second method to sell a stock is by random chance. Instead of selling based on a loss of momentum, we sell by random chance. We run several tests that assign different probabilities. If we designate a 1% sell probability, for example, each month all 50 stocks are assigned a random number between 1 and 100, and anything ranked 1 is sold. There is no attention paid to the momentum ranks. The random sell process can sell a high or low momentum stock. While investors don’t actually sell (or buy for that matter) stocks by random chance, we think this approximates being undisciplined over time. An investor might sell a very strong stock just to take a profit. An investor might hold a stock that is ranked very low in the momentum rankings because they like the product and can’t bear to sell it. What we are measuring is deviation from the original plan. The original plan was the disciplined momentum strategy: buy strong stocks and sell them when they become weak. What does any deviation from that do to returns?

The disciplined strategy performs very well over time. The average annualized return (not including any fees or transaction costs) for all 100 trials from 12/29/1989-12/31/2018 is 11.56% compared to the return of the S&P 500 Total Return Index of 9.29%. In addition, all 100 trials outperform the S&P 500. These portfolios don’t outperform every year, and in some years some outperform and some underperform. But given time, the process works very well, and you have a high probability of generating market beating returns. (More detailed data on each test is included in the appendix). These results are similar to what we have found in other momentum tests.

The undisciplined investor doesn’t fare as well. Keep in mind that the undisciplined investor gets the benefit of buying stocks from the high momentum basket, which we know outperform if they are sold in a disciplined fashion. Any performance below the base case of the disciplined investor is simply due to not having a disciplined sell process. A 1% sell probability would equate to approximately 12% average annual turnover (50 stocks * 1% * 12 months = 6 sales per year). A 15% sell probability would equate to roughly 180% annual turnover. We would guess that undisciplined investors would tend to have less, rather than more turnover because part of being undisciplined is neglecting the portfolio. This haphazard sell process will affect returns by selling strong stocks too early and holding weak stocks too long. The results below summarize the cost of not following your sell discipline.
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### Table: Relative to Baseline

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<th>FACTOR</th>
<th>BUY LEVEL</th>
<th>SELL LEVEL</th>
<th>IMPLIED TURNOVER</th>
<th>AVERAGE PERF</th>
<th>TRIALS OUTPERF</th>
<th>RELATIVE TO BASELINE</th>
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<tr>
<td>12-1</td>
<td>TOP DECILE</td>
<td>TOP QUARTILE</td>
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<tr>
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Past performance is not indicative of future returns. In all securities trading there is a potential for loss as well as profit. The statistics above are tied to the back-tested performance of non-investable indexes. Please see the disclosure for important information regarding the back-test.

The results are not good. As your sell chance increases (higher turnover) the returns come closer to our baseline. This makes sense because you have a higher probability of eliminating the losers from the portfolio. You also have a higher probability of eliminating a strong stock, but since we only draw from the strong stocks on the buy side, selling a winner isn’t as much of a problem here. As turnover decreases, it becomes apparent the strategy no longer works. At a 5% sell chance, outperforming the market over time is nothing but a coin flip (with only 55% of the 100 trials outperforming), and the average return is 201 basis points below our baseline average. The 1% chance model shows that if you lack the discipline to stick to your sell plan then you shouldn’t even play the game.

Adhering to your sell discipline is more important than investors realize. There are always excuses to not sell something that meets your pre-defined sale criteria. In a momentum strategy, that can be catastrophic. The amount of underperformance caused by a lack of discipline is meaningful and more than most professional investors charge clients in fees on an annual basis. Considering most retail investors lack the discipline it takes to implement a momentum strategy, one simple thing professional investors can provide to add value is to follow the rules of their strategy and not deviate from the investment plan, no matter how difficult that might be.
The performance information presented is the result of a strategy back-test. Back-tested performance is hypothetical (it does not reflect trading in actual accounts) and is provided for informational purposes to illustrate the effects of the strategy during a specific period. Back-tested performance results have certain limitations. Back-testing performance differs from actual performance because it is achieved through retroactive application of a model investment methodology designed with the benefit of hindsight. Performance results (both backtested and model performance) do not represent the impact of material economic and market factors that might have an investment advisor’s decision making process if the advisor were actually managing client money. Dorsey, Wright & Associates, LLC (collectively, with its parent company and affiliates “DWA”) believes the data used in the testing to be from credible, reliable sources, however, DWA makes no representation or warranties of any kind as to the accuracy of such data.
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