Relative Strength at Work, Vol. 7: Probabilities versus Possibilities

October 21st, 2017

Introduction

"You don't want to believe in luck, you want to believe in odds."

~ Charlie Munger

Jim O'Shaughnessy wrote an excellent article back in March of this year entitled "Successful Active Stock Investing is Hard: Here are Seven Traits that I Believe are Required for Active Investors to Win in the Long Term."(1)

We commented on parts of that article in our June newsletter. In this edition of Relative Strength at Work we are going to reference trait #6; "Successful Active Investors Think in Terms of Probabilities".

A few excerpts:

> "We are deterministic thinkers living in a probabilistic world. We crave certainty about how things will unfold. This is precisely why we fall for predictions and forecasts. Yet, even in the most prosaic of circumstances, nothing in the stock market – or in life – is 100% certain. ***But most people confuse possibility with probability and the two are almost exact opposites.***
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> If we focus on "possibilities" rather than "probabilities", we are lost. Almost anything is possible, even when highly improbable. If we think only of possibilities, it would be hard getting out of bed in the morning. It's possible that you will get hit by a bus, get accosted by a stranger, get killed by a crashing plane or, more brightly, win the lottery, despite the very low probability of any of these events occurring. Focusing on possibilities can lead us to a state of constant fear – thus our desire for orderly, known and "certain" information and actions.
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> Life doesn't work that way. According to Richard Peterson's *Inside the Investor's Brain,* '***When an outcome is possible but not probable, people tend to overestimate its chance of occurring***. This is called the possibility effect… Emotions in uncertain or risky situations are more sensitive to the possibility rather than the probability of strong consequences, contributing to the overweighting of very small probabilities.'
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> ***To succeed, it's best to know the probabilities of a certain outcome and act accordingly***." (*ed*: all emphasis added)

To sum up:

1. Successful active investing is hard.
2. To succeed, we need to know the probabilities of certain outcomes and act accordingly.
3. It is a challenge to determine what the true odds of success are, especially when 'possible' outcomes are often misconstrued as 'probable'.

Probability versus Possibility in Action

Many times over the years people have told us about their frustrations with stock market investing:

- "The stock market is nothing but a gamble."
- "No one really knows anything for sure."
- "How can all these experts agree with such certainty about an outcome, and then the exact opposite occurs?"
- "I don't know anyone who has made a lot of money in the stock market, and kept it."
- "Why was I never told to sell?"

All of these complaints stem from an experience where the investor was confused between the difference between **possibility** and **probability.**

"The stock market is nothing but a gamble."

Correct! But like all odds-based games (e.g. dice or cards), in reality there is a normal distribution of results where the probabilities of success and failure can be quantified. The 'gambling' experience arises when somewhere in the decision making process a '*possible*' outcome was misrepresented as a '*probable*' outcome.

"No one really knows anything for sure."

Correct! As Jim O'Shaughnessy mentioned earlier, we all crave certainty – but nothing in life or investing is certain. The good news is that you *don't need to know* anything *for sure* to make money. What you do need to do is to act in a manner that takes advantage of when the odds are in your favor. Alternatively, you also need to act when the odd are no longer in your favour.

"How can all these experts agree with such certainty about an outcome, and then the exact opposite occurs?"

Extensive knowledge of a topic does not equate to being able to predict the future. When we read about a group of experts having a consensus opinion, we tend to give that viewpoint more credibility than one where expert opinion is evenly divided. In reality, in each case the odds of success are about the same(2). The danger with consensus opinions is that it gives probable and possible outcomes the illusion of being a near-certainty (and thus encourages a higher level of risk taking than if the true odds were known).

"I don't know anyone who has made a lot of money in the stock market, and kept it."

We've shared examples of this before via the experiences of Ted and Ludwig. It is human behavior to crave certainty in the future. A huge challenge for nearly all investors whom have enjoyed sizable gains (whether from investing in the stock market, bitcoin, or residential real estate) is trying to legitimately assess when the party is truly and finally over. The longer a profitable price trend continues the more convinced the beneficiaries of that trend believe in its permanence. The reality is that continued profits in any form of investing are at best 'probable', no matter the duration or profitability of the trend thus far. All successful investing requires some form of risk management to handle the inevitability of a profitable trend ending.

"Why was I never told to sell?"

This by far is the most common complaint we've heard over the years. It stems from misplaced faith in an outcome when that outcome is, at best, only probable. An effective sell discipline requires an understanding of the odds, plus a willingness to look foolish sometimes when the investment you sell continues to go higher (because its odds based, not certainty-based). Whether we are talking about regret over not selling at a high price (to protect paper profits) or regret over not selling on the way down (to limit a loss), nearly all sell regret stems from over-estimating the odds of a successful eventual outcome.

These frustrations arise from a desire to believe that financial experts should somehow *know* with some high degree of certainty how an investment is going to work out. The difficulty for all investors everywhere is in estimating the actual odds of success, from highly probable to barely possible, and in staying current as the odds change over time.

So, if one of the main challenges to successful investing is to assess the true probabilities of an outcome, what advantages does a relative strength based investment strategy have over any other approach? How can we make statements like 'the odds are in your favor', or that we 'harness the power of probabilities'?

The answer lies in our process, how it process was created and in how it's executed.

Seeking Better Odds; Creating an Investment Process

From 2011 through 2014 we worked to develop a rules-based investment process derived solely from the principals of relative strength and the laws of supply and demand. The first step to creating this process was to develop rules that could be quantified. "Measure it to improve it", as the management gurus would say. This meant that the buy/sell decisions would have to be:

1. *Rules-based*; all the decisions needed to be mechanical in nature. No part of the execution of the process (what to buy, when to buy, when to sell, and position size) could be arbitrary or intuitive because to do so would make the test results unreliable. The application of the rules needed to be consistently applied over time to properly asses if the process was working.

2. *Simple to apply*; the more complicated a process becomes the more chance that subjectivity may creep into the decisions. The rules governing the investment decisions needed to be simple enough to apply that they left no room for interpretation, otherwise any success we might have had on our hypothesis testing becomes useless due to its lack of repeatability.

3. *Fact-based*; the process had to be based on data that can be measured in real time while avoiding any and all interpretation of said data. We use price and the relative strength of price as our data because it represents what matters right now, in the present. Price immediately adapts to new information without having to wait for an expert to interpret that new information for us, and then tell us what to do (buy, hold, or sell). Like any other system, you can't improve the output if you don't have measurable well-defined inputs ("garbage in/garbage out").

The second step was to test the rules we had developed for consistency. For instance, if we've determined a set of rules that deliver above-average results for a 20 stock portfolio using the S&P 500 index, we'd then repeat the testing of those rules on different portfolios using different markets. How would the process work with a 30 stock portfolio? How about only 15 stocks? Do the rules work as well with Canadian stocks? How about mid- and small-caps markets? Does it work with different investment instruments, such as ETF's and Mutual funds?

If the final version of our investment process had merit then our probabilities of success should be quite similar across a variety of different markets (Canada, the US, Global) and environments (bull and bear markets).

Real World Results – Execution Test

So although it was comforting to see good results based on historical data, as Yogi Berra would say: "*In theory, there is no difference between theory and practice. In practice, there is.*"

So how did our process work *in practice?* Did it perform we expected and intended?

Before we answer that question we need to provide some context in what we were expecting to achieve, not just from a total return perspective, but on a stock by stock accounting of profit and loss. An important distinction in our process was that it was *not* designed to try and improve the odds of making money on each investment[(3)]. It was designed to improve the odds of making more money when we were right, and losing less money when we were wrong. The broad benefit of this is that our process is designed to protect your principle.

We were expecting to achieve results similar to those attained from our back-tested (2007-2013) hypothetical 30 stock model, which were as follows:

- Average loss rate of 53% (i.e. We lost money on 53% of trades) [(4)]
- Average profit on wins of 26%
- Average loss on losses of -7%

Our actual results, based on the last three years of data from our North American Growth Portfolio (Oct 21st 2014 to Oct 20th 2017) were as follows:

- Average loss rate of 52% (i.e. We lost money on 52% of trades) [(4)]
- Average profit on wins of +23.4%
- Average loss on losses of -9.9%

We would suggest that the similarities are not coincidental, but by design. Even though there is a slight difference in average profit and loss from the back-tested results, for the most part, they are what we expected. You might even say that *we achieved investment success* because we *knew the probabilities of a certain outcome and acted accordingly (i.e. we held the winners and sold the losers).*

From a total return perspective, the North American Growth Portfolio achieved a respectable three year annualized return of +13.6%[(5)], beating its benchmark return of 11.2%[(6)] over the same time period. After deducting our management fee that works out to a total profit of slightly more than $400,000[(7)] on a $1 million dollar initial investment over three years.

It's equally important to articulate the manner in which we earned those returns. Does the *average* profit and loss mentioned above hide some aggressive risk taking on our part? Did we have to lose big in an attempt to win big?

No.

- Number of instances we earned a profit greater than +30% = 26 (8)
- Number of instances we suffered a loss greater than -30% = 2 (8)

The arithmetic of loss is such that if we lose -30% on an individual stock in the portfolio, we have to earn 43% on the next position just to break even. To achieve compound growth over time an investor **has** to keep the number of large losses to a minimum, no matter the market conditions.

Summary

As we mentioned before,

1. Successful active investing is hard. **To make it a little easier always keep the odds stacked in your favor; a relative strength process is one way to achieve this.**
2. To succeed, one needs to know the probabilities of certain outcomes and act accordingly. **If over the long term you are only going to make money on half the stocks in your portfolio you must act to ensure the profits are always bigger than the losses.**
3. It is a challenge to determine what the true odds are, especially as 'possible' outcomes are often believed to be 'probable' ones. **If you sell your winners too soon (because it's possible your profits might disappear) or hang on to your losers too long (because it's possible they recover) then you are investing against the odds. The odds then are that you're probably not going to be successful over the long term.**

Understanding these differences between possibility and probability will be a huge help in addressing many common frustrations that all investors experience.

To be a successful investor it's best to know the probability of certain outcomes and act accordingly. If you are wondering what your odds are and you'd like to know please give us a call.

Thanks for reading.

Footnotes:

(1) What Works on Wall Street, Jim O' Shaughnessy, March 13, 2017, "Successful Active Investing is Hard: Here are Seven Traits that I Believe are Required for Active Investors to Win in the Long Term."

(2) "The CXO Advisory group gathered 6,582 (investment) predictions from 68 different investing gurus made between 1998 and 2012, and tracked the results of those predictions. There were some very well-known names in the sample, but the average guru accuracy was just 47%–worse than a coin toss. Of the 68 gurus, 42 had accuracy scores below 50%." What Works on Wall Street, Jim O' Shaughnessy, March 13, 2017.

(3) 45% – 55% is the average winning % for professional money managers over the long term, irrespective of style or methodology. See "15 Best Practices for Portfolio Managers" Doug Hirschhorn PhD, http://ritholtz.com/2016/03/15-best-practices/

(4) Loss rate refers to the % chance an investment suffers a loss greater than -1%; i.e. a loss rate of 50% on a portfolio of 30 stocks would mean that 15 of the stocks purchased suffered a loss of greater than -1%.

(5) Returns gross of fees; see our website for regular monthly performance updates, http://www.cameronwoods.ca/portfolios

(6) Benchmark is 50% iShares TSX Composite Index ETF (XIC) and 50% SPDR ETF S&P 500 Index (SPY), in Canadian dollars.

(7) Total net profit on $1,000,000 invested at inception (Oct 21st 2014) is $401,168.

(8) Full list of big winners and big losers shown below:

Winners and Losers > 30%, Oct 21st 2014 – Oct 20th 2017

Winners > 30%

NVidia Corp	+189.4%
Constellation Brands Inc.	+114.5%
First Majestic Silver Corp	+110.6%
Paramount Resources Ltd	+106.9%
Air Canada	+104.7%
Applied Materials Inc.	+103.3%
Electronic Arts Inc.	+ 81.9%
Kroger Co.	+ 80.5%
Monster Beverage Corp	+ 80.2%
Oneok Inc. New	+ 74.3%
Constellation Software Inc.	+ 72.6%
Micron Tech Inc.	+ 63.8%
Valeant Pharmaceuticals	+ 58.2%
FirstService Corp	+ 57.6%
CCL Industries Inc. CL B	+ 50.2%
Pan American Silver Corp	+ 42.9%
Lundin Mining Corp	+ 41.4%
Waste Connections Inc.	+ 40.5%
Zions Bancorp	+ 36.7%
Teck Resources Ltd	+ 34.6%
Southwest Airlines Co.	+ 33.0%
Barrick Gold Corp	+ 31.9%
Hewlett Packard Enterprise	+ 31.2%
Northrop Grumman Corp	+ 31.1%
Netflix Inc.	+ 30.5%
Actavis PLC	+ 30.1%

Losers > 30%

Concordia International Corp	-45.6%
Chesapeake Energy Corp	-34.0%

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