# 4 ways to predict market performance

By Tristan Yates | Updated August 4, 2018 — 10:23 AM EDT





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There are two prices that are critical for any investor to know: the current price of the investment he or she owns, or plans to own, and its future selling price. Despite this, investors are constantly reviewing past pricing history and using it to influence their future investment decisions. Some investors won't buy a stock or index that has risen too sharply, because they assume it's due for a correction, while other investors avoid a falling stock because they fear it will continue to deteriorate.

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Does academic evidence support these types of predictions, based on recent pricing? In this article, we'll look at four different views of the market and learn more about the associated academic research that supports each view. The conclusions will help you better understand how the market functions, and perhaps eliminate some of your own biases.

## Momentum

"Don't fight the tape." This widely quoted piece of stock market wisdom warns investors not to get in the way of market trends. The assumption is that the best bet about market movements is that they will continue in the same direction. This concept has is roots in behavioral finance. With so many stocks to choose from, why would investors keep their money in a stock that's falling, as opposed to one that's climbing? It's classic fear and greed. (For more insight, see the Behavioral Finance tutorial.)

Studies have found that mutual fund inflows are positively correlated with market returns. Momentum plays a part in the decision to invest, and when more people invest, the market goes up, encouraging even more people to buy. It's a positive feedback loop.

A 1993 study by Narasimhan Jagadeesh and Sheridan Titman, "Returns to Buying Winners and Selling Losers," suggests that individual stocks have momentum. They found that stocks that have performed well during the past few months, are more likely to continue their outperformance next month. The inverse also applies: Stocks that have performed poorly are more likely to continue their poor performances.

However, this study only looked ahead a single month. Over longer periods, the momentum effect appears to reverse. According to a 1985 study by Werner DeBondt and Richard Thaler titled "Does the Stock Market Overreact?" stocks that have performed well in the past three to five years are more likely to underperform the market in the next three to five years and vice versa. This suggests that something else is going on: mean reversion.

## Mean Reversion

Experienced investors, who have seen many market ups and downs, often take the view that the market will even out, over time. Historically, high market prices often discourage these investors from investing, while historically low prices may represent an opportunity.

The tendency of a variable, such as a stock price, to converge on an average value over time is called mean reversion. The phenomenon has been found in several economic indicators, including exchange rates, gross domestic product (GDP) growth, interest rates and unemployment. Mean reversion may also be responsible for business cycles. (For more insight, check out "Economic Indicators to Know" and "Economic Indicators for the Do-It-Yourself Investor.")

The jury is still out about whether stock prices revert to the mean. Some studies show mean reversion in some data sets over some periods, but many others do not. For example, in 2000, Ronald Balvers, Yangru Wu and Erik Gilliland found some evidence of mean reversion over long investment horizons, in the relative stock index prices of 18 countries. However, even they weren't completely convinced, as they wrote in their study, "A serious obstacle in detecting mean reversion is the absence of reliable long-term series, especially because mean-reversion, if it exists, is thought to be slow and can only be picked up over long horizons."

Given that academia has access to at least 80 years of stock market research, this suggests that if the market does have a tendency to mean revert, it is a phenomenon that happens slowly and almost imperceptibly, over many years or even decades.

## Martingales

Another possibility is that past returns just don't matter. In 1965, Paul Samuelson studied market returns and found that past pricing trends had no effect on future prices and reasoned that in an efficient market, there should be no such effect. His conclusion was that market prices are martingales. (To read more, see "Efficient Market Hypothesis: Is the Stock Market Efficient?")

A martingale is a mathematical series in which the best prediction for the next number is the current number. The concept is used in probability theory, to estimate the results of random motion. For example, suppose that you have $50 and bet it all on a coin toss. How much money will you have after the toss? You may have $100 or you may have $0 after the toss, but statistically, the best prediction is $50 -- your original starting position. The prediction of your fortunes after the toss is a martingale. (To learn how this applies to trading, see "Forex Trading the Martingale Way.")

In stock option pricing, stock market returns could be assumed to be martingales. According to this theory, the valuation of the option does not depend on the past pricing trend, or on any estimate of future price trends. The current price and the estimated volatility are the only stock-specific inputs.

A martingale in which the next number is more likely to be higher is known as a sub-martingale. In popular literature, this motion is known as a random walk with upward drift. This description is consistent with the more than 80 years of stock market pricing history. Despite many short-term reversals, the overall trend has been consistently higher. (To learn more about random walk, read "Financial Concepts: Random Walk.")

If stock returns are essentially random, the best prediction for tomorrow's market price is simply today's price, plus a very small increase. Rather than focusing on past trends and looking for possible momentum or mean reversion, investors should instead concentrate on managing the risk inherent in their volatile investments.

## The Search for Value

Value investors purchase stock cheaply and expect to be rewarded later. Their hope is that an inefficient market has underpriced the stock, but that the price will adjust over time. The question is: Does this happen, and why would an inefficient market make this adjustment?

Research suggests this mispricing and readjustment consistently happens, although it presents very little evidence for why it happens.

In 1964, Gene Fama and Ken French studied decades of stock market history and developed the three-factor model to explain stock market prices. The most significant factor in explaining future price returns was valuation, as measured by the price-to-book ratio(P/B). Stocks with low price-to-book ratios delivered significantly better returns than other stocks. (To read more about this ratio, see "Using the Price-to-Book Ratio to Evaluate Companies.")

Valuation ratios tend to move in the same direction, and in 1977, Sanjoy Basu found similar results for stocks with low price-earnings (P/E) ratios. Since then, the same effect has been found in many other studies across dozens of markets. (For more on this, check out "Understanding the P/E Ratio.")

However, studies have not explained why the market is consistently mispricing these "value" stocks and then adjusting later. The only conclusion that could be drawn is that these stocks have extra risk, for which investors demand additional compensation. (To learn more about this phenomenon, read "The Equity-Risk Premium: More Risk for Higher Returns" and "Calculating the Equity Risk Premium.")

Price is the driver of the valuation ratios, therefore, the findings do support the idea of a mean-reverting stock market. As prices climb, the valuation ratios get higher and, as a result, future predicted returns are lower. However, the market P/E ratio has fluctuated widely over time and has never been a consistent buy or sell signal.

## The Bottom Line

Even after decades of study by the brightest minds in finance, there are no solid answers. The only conclusion that can be drawn is that there may be some momentum effects, in the short term, and a weak mean-reversion effect, in the long term.

The current price is a key component of valuation ratios such as P/B and P/E, that have been shown to have some predictive power on the future returns of a stock. However, these ratios should not be viewed as specific buy and sell signals, but as factors that have been shown to play a role in increasing or reducing the expected long-term return.

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