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Investment Newsletter – June 2014

Our main subject for this newsletter is an interesting new theory of how stock markets work. In contrast to the simplified world of efficient markets theory, this new paradigm can account for much of the real world phenomenon that researchers have shown to be inconsistent with the efficient markets ideal. Most importantly we'll explore its implications for real world investors. After our deep dive into the underpinnings of stock markets, we'll wrap up with a discussion of current market conditions.

Stock Market Theories – Simple Ideals to Explaining Complex Reality

The Efficient Markets Hypothesis (EMH) traces its academic roots back over 100 years¹ but the modern form of the theory came to prominence with the publication of *'Efficient capital markets: A review of theory and empirical work'* by Eugene Fama in 1970. This was followed in 1973 by *'A Random Walk Down Wall Street'* (B. Malkiel) which presented the academic theory for the general public and proposed the idea of index fund investing.

The EMH has several forms but the basic idea is that stock prices properly take into account all information at every point in time (or nearly so) and that returns are proportional to risk as defined by stocks' sensitivity to market volatility. (This sensitivity is referred to as Beta). If EMH were strictly true you should not be able to earn any additional returns from analyzing companies or stock prices. This implies that an investor should invest in the whole market, and do so with the lowest costs possible because money spent on analysis would be wasted. Thus the passive index funds with the lowest costs would be optimal. In the late 70's the EMH theory was taught widely in college courses; when the students reached investing age, the popularity of index funds took off.

While mathematically elegant, EMH was a theory that only fit the real world very approximately. Academic researchers then began to test the theory empirically to identify market "anomalies" that contradicted the implications of the theory. In particular this meant identifying active investing strategies that could produce returns that were higher (on average) than market index returns. There

¹ For example Bachelier in 1900 published 'Theorie de la Speculation'.

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were many such studies but we'll focus on three of the most important efficiency contradictions:

1. Stock price momentum
2. Excess returns to value style investing
3. Excess returns relative to risk for low volatility stocks

In their 1993 paper "*Returns to buying winners and selling losers: Implications for stock market Efficiency*", Jegadeesh and Titman documented the excess returns available using momentum strategies for 3 to 12 month holding periods. This study shows that prices do not reflect all information efficiently at each point in time. Instead prices take time to adjust; price trend analysis can provide information about future prices that enable an investor to earn higher returns than available with a passive index strategy.

In their 1992 paper '*The Cross-Section of Expected Stock Returns*', Fama and French defined Value stocks as stocks with higher book value to market value (B/M) ratios as compared to other stocks. Conversely, growth or glamour stocks are characterized by low book to market value ratios. Others have used price-to-earning (P/E) ratios to divide stocks between these classes but the results are the same. Value stocks provide excess returns relative to growth stocks (and relative to the market index).

The Fama and French paper also found that besides value characteristics, the other determinant of returns was size of the company (in terms of market capitalization). After accounting for the size and value factors they found that investors would not earn any additional return by investing in stocks with higher sensitivity to market volatility (i.e. higher Beta).

After many years of follow up studies looking at these anomalies, and despite a few contrary interpretations, the general consensus is that the findings are inconsistent with the Efficient Markets Hypothesis. In the 1990's a new field in academic study called Behavioral Finance gained popularity as an alternative approach to explaining financial market anomalies. Researchers have offered various interpretative explanations as alternatives to EMH but so far there has been no unifying theory that could explain the results of the various empirical studies.

A couple of mutual fund studies and a related anecdote will illustrate the motivation for the behavioral approach to explaining the market. Let's start with the well know example of the Fidelity Magellan fund during the period it was open to investors and managed by Peter Lynch (roughly 1981 – 1990). During those 9 years the fund earned an annual return of 21.8% (vs. 16.2% for the S&P 500) but the typical investor earned just 13.4%, calculated on an asset weighted basis. Why? Because investors put money in after high returns (i.e. missing them) and pulled money out after low returns (i.e. capturing underperformance but missing the next round of high returns). More recently a Morningstar study² of fund investor returns over the 10 years ended 12/31/2013 showed that investors in U.S. equity funds under-performed their funds on average by 1.66% annually.

One of the authors of the new theory that we will discuss shortly is Paul Woolley who worked at Value Investing Fund firm GMO. In his recent article for the

² From "Mind the Gap 2014" 2/27/2014

CFA Institute he explains how his experience at GMO led him to come up with his alternative model of how markets work. For 10 years during the late 1980's into the 1990's GMO had good performance using their value strategy. Then the technology bubble came along and by March 2000 (the peak of the bubble) their fund had underperformed the S&P 500 by 20%. Clients withdrew 40% of their assets, most leaving near the peak of the bubble. Over the next 5 years their value strategy rebounded to outperform by 2.5 times the prior under-performance. Woolley noted that GMO was rational in continuing to follow the value strategy that investors had signed up for and yet clients were also rational in deducing that GMO was no longer competent after 2 years of under-performance. The lessons that he wanted to incorporate in his theory were the following:

1. Rational behavior by all parties is consistent with irrational pricing in the market.
2. "Fund flows are a big factor in asset price movements and are as important in determining stock prices as the projected cash flows of the securities.

Woolley along with Dimitri Vayanos of the London School of Economics laid out the new theory in their 2013 paper titled "**An Institutional Theory of Momentum and Reversal**". In this paper they present a rational explanation of how the institutional structure of the mutual fund industry leads to mispricing of securities such that some investors can expect to earn higher than market returns.

The theory describes a world in which investment managers manage pools of investor money in funds. As money comes into a fund from investors, it spends the money in the market - buying stocks similar to the ones it already owns. Conversely, it must liquidate portions of its portfolio as investors pull money out of the fund. When the representative fund holds positions different from the market index, the fund's sales and purchases will move relative stock prices and cause performance of the fund's strategy to differ from the market index. Thus flows into a fund/strategy pushes up its stocks and therefore its short run return, while flows out of a fund/strategy pushes down its stocks and its short run return.

The flows themselves are the result of investors' assessments of fund managers' competence based on prior period returns relative to the market index. Therefore if the fund strategy experiences a negative earnings surprise in its portfolio or if its costs exceed its excess returns, investors reason that the manager is no longer competent and they pull money out. Such flows, in turn, cause the manager to sell the same stocks that already declined and so the moves are amplified. The opposite happens if the fund experiences out-performance in a particular period. The hypothesized model incorporates a slow response by investors due to the learning process as well as inertia. As compared to the older theory's assumption of instantaneous reactions, this is a more realistic model of behavior for fund investors.

The authors also put forth another reason for a gradual drop in securities prices which they refer to as the "bird in the hand" effect. The idea is that even if we can predict that the fund will experience additional outflows and therefore it will likely be forced to sell stocks from its strategy, further amplifying the downward pressure on returns, we cannot be certain this will happen. Once the fund's stocks have already declined more than they should have based on the stock's predicted cash flows, the long run expected returns to the strategy rise above the expected returns of the market. Therefore some investors will prefer to take the current

opportunity to lock in what they see as higher returns, even though they may be giving up an opportunity to earn even higher returns by waiting a bit longer for the down moves to play out. Thus they are choosing the “bird in the hand” over the possibility of catching the 2 in the bush (as the saying goes). Eventually stocks decline enough so that they are so compelling to investors that the trend is broken and reverses. (Or if it was a positive surprise the stock increases to the point where investors want to sell to take their gains or even sell short to bet on a decline).

The theory also ties in fund manager career incentives to observed market phenomenon. Fund managers are measured relative to index benchmarks and are either incentivized, or required, to keep their portfolio tracking error within a tight range (meaning the volatility of their return differences versus the benchmark must be small). As observed in the Active Share³ study of mutual fund holdings, this leads many funds to become “closet indexers” who mimic the index and therefore underperform because fees exceed the value they can add under the constraints they face. The new theoretical model also shows that these fund manager incentives distort stock prices by causing funds to pay more for stocks with greater sensitivity to market volatility (i.e. high Beta stocks) compared to lower volatility stocks. This behavior also causes the overall market to become overvalued. Thus the theory explains why we don’t see additional returns for taking on higher risk (as defined by market volatility) as we would expect to see if the EMH were true.

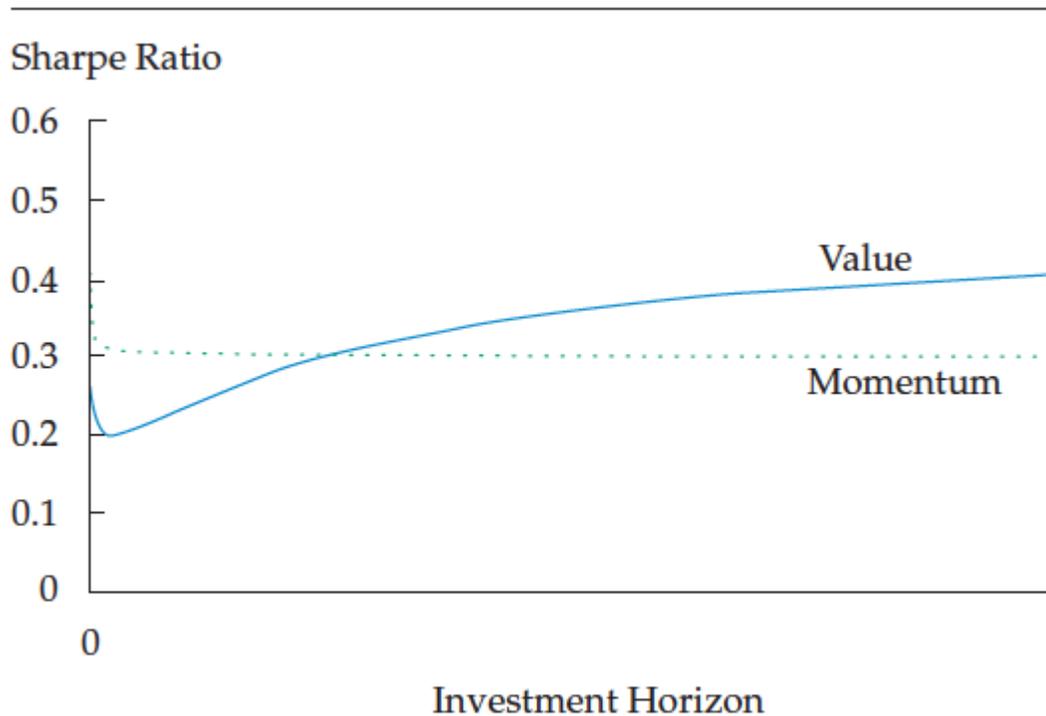
Implications for Investors – Strategy Analysis

The theoretical model explains two observed phenomena that can be exploited to earn excess returns relative to the market index. One is momentum which implies that a trader can buy positive surprises or sell negative surprises to earn excess returns because stock prices keep adjusting in the same direction over a period of time. In fact, the momentum effect causes stock prices to move past the point where a stock’s future return is back in line with the market required return per unit of risk. When the stock has dropped below its intrinsic value it becomes a Value stock which can be bought to earn excess returns. (Conversely a glamour/growth stock that rises above true value could be sold short to earn higher returns). Note that these are two very different strategies – the momentum investor is trying to ride a stock as it becomes more and more mispriced by betting it continues along its path. Timing is critical in reversing the trade because eventually the stock will be pushed back towards intrinsic value which would wipe out the momentum investors gains. The value investor, on the other hand, only needs to assess the return potential correctly - and patiently wait for his reward. Actually the value investor needs patience and conviction because they are not trying to gauge the path of momentum and so may well ride the stock further down even once it becomes significantly under-valued.

After laying out the mathematics and intuition of their theory, Woolley and Vayanos take things a step further by calibrating their model. Using empirical data from various others’ research papers they calculate average expected performance for a Value strategy and a Momentum strategy. For the Momentum strategy they assume the optimum timing for purchases and sales. For the Value strategy they

³ “Active Share and Mutual Fund Performance” by Antti Pettajisto 2013.

assume knowledge of stocks' future cash flows (though they note that simply using the current price to earnings ratio won't change the results significantly). They measure performance of each strategy as the ratio of expected return to standard deviation –i.e. the return per unit of risk. This is known as the Sharpe Ratio. They then look at the results for different investment horizons and compare them to the market index return per unit of risk which they give as .30 over any time horizon. The results are depicted in the graph below where the maximum Investment Horizon is 10 years.



Source: "The Fallibility of the Efficient Market Theory: A New Paradigm" by Paul Woolley
- The CFA Institute 2nd Quarter 2014

Woolley explains: "momentum investors trade stocks regardless of value, whereas value investors retain, or add to, losing stocks if they remain cheap. Value investors, therefore, benefit from the mean reversion of value, which makes the long-run risk of the value strategy less than the sum of the short-run risks".

I hope you're still following along here because now comes the punch-line.
The implication of this is that short-horizon investors should adopt a momentum strategy (or stick with bonds) while long-horizon investors are better served by a value strategy.

A Personal Perspective

My experience is that value investing works for me because I have the right combination of intelligence, training, and personality. It takes all 3. My opinion is that personality is much more important than people realize. That's because it takes patience and faith to stick to it when the crowd of short term momentum

traders is taking prices in the opposite direction of value. I don't experience risk in the same way as others might because I don't worry too much about whether the market agrees with me on value today or next week. If I'm right, the market will eventually agree and so the only risk I worry about is being wrong about the company's business prospects. This way of thinking enables me to be patient while I wait for the long run results.

Even though my long run strategy calls for buying whenever I find a stock offering high enough returns, I want to capture extra returns from short term movements if I can do so. This has been a source of frustration from time to time as it is quite difficult to buy at the absolute lowest price offered. The Bird in Hand effect mentioned in the paper is very much a factor. Even though a stock is trending down and momentum may take it further down, I want to capture the high returns on offer and so I frequently buy in a bit early before the downward move has played out all the way. On the other hand I've also looked at stock charts where there is much volatility and tried to capture a bit of extra discount by waiting for the next dip – only to watch the stock take off towards true value without me onboard. Over time I've modified my approach to reduce such misses by buying in chunks so I can average down if the stock declines or at least capture some of the up move if the stock takes off. Still, I think there is more room for fine tuning my buy timing.

When it comes to selling, my strategy calls for selling when a stock goes above intrinsic value – meaning future long run returns have gone below target as the price has risen. But this is not optimal if we can rely on momentum to carry the stock far beyond its value. I would like to capture more of the upside momentum in my winning positions and I have adjusted my sales to allow for upside beyond my target. I also use an incremental approach on selling by reducing holdings bit by bit as the price goes above value. This is especially helpful in the current market where momentum is taking stocks to such highs that replacement stocks with acceptable returns are hard to find. But it does bring the risk of earning below-target returns on some positions if the market turns down.

I have always been skeptical of the momentum approach since it is notoriously difficult to get things right when the market reverses direction or bounces around in a range. Now that I see some logical underpinnings for why and when momentum should be taken into account, I intend to study how to most effectively incorporate this so as to enhance the timing of buys and sells. The overall strategy will remain a value strategy as that remains the best choice for the long term investors I seek as clients, but adding momentum to the tool kit may provide us a bit of extra return. We'll take it if/when it can add value to the current strategy.

Current Market Conditions

So far, this year has been much more favorable for our investment strategies than last year. Our equity strategy (Long Term Value) significantly outperformed the S&P 500 during the February market decline – which gives us confidence that we can avoid a large part of losses if the market moves back towards historical valuation levels. We've lost the advantage in the big up move since then, but are

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ahead of where we need to be to meet our return expectations. At quarter end we are up roughly 7.1% year to date.

Meanwhile the bond market has performed very well. Last September I explained that the unintended spike in interest rates caused by the Federal Reserve Bank's taper talk would likely slow the economy and that they would want to convince the market that there was no intention of selling bonds or raising interest rates for a long time. In fact, the Fed did exactly that. The rise in rates last May also had a negative impact on growth. That slowdown, combined with the Fed's reassurances, turned around the bond market dynamics enough that long term rates have come down about .47% since the start of the year. As a result our Long Term Income strategy has managed to beat our equity portfolio by gaining about 8.6% through June 30, 2014. The lower risk Short Term Income portfolio is up a more modest 4.7% year to date, but that also puts it ahead of expectations.

I expect bond yields to bounce around in the same range they have so far this year so that bond returns over the rest of the year are unlikely to keep pace with the first half. As long term investors, it would be in our interest to see rates go higher over time so that we could earn better returns from reinvestment. I think this will eventually happen but it may have to wait for a more growth oriented set of policy makers at the controls in Washington. In the meantime we will make the most of the opportunities offered while staying prudent in our acceptance of risks. As always our goal is to avoid damaging losses in the next market down turn so we are ready to take advantage when the best opportunities arise.

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