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## Investment Newsletter – December 2019

This newsletter starts with a detailed answer to a very insightful client question: how do we incorporate new information about the economy and markets into investment strategies? Following that is an update on the performance for the Quantitative Equity Investment strategy.

### **Incorporating Trends into a Dynamic Investment Strategy**

Every day brings with it new information about the changing business environment of various industries, the state of the overall economy, government policy changes, and the market reactions to the news. The question is: how do we incorporate such information into a dynamic investing strategy in order to meet our investing objectives? In this newsletter I will attempt to explain such a process. Our starting point is to decide what sources of information really matter given the amount of time we can spend. Here's my summary:

<b>Information Source</b>	<b>Key Content</b>	<b>Why you need this</b>
Wall Street Journal	Current news about all topics related to economics, industry, government and markets.	Understand key developments effecting industries and specific companies.
Economic Reports	Measurement of current economic variables such as inflation, relative price changes, employment, trade flows, supply and demand.	Understand changes in key economic variables that drive financial markets.
Financial Market Data	Changes in interest rates, stock prices, and risk premiums, along with their historical context.	Understand whether market prices have adjusted to current circumstances.

Economic reports are frequently summarized in the Wall Street Journal so you may only need to seek out those pertaining to a particular area of interest.

### **Macro-Economics Analysis**

Next we need to think about the linkages between macro economics and market variables. Every month we get a new reports of jobs created in the economy, the unemployment rate, and the change in wages. These reports tell us whether consumer incomes are rising or falling, and the rate of change. As of the 3<sup>rd</sup> quarter of 2019, consumer spending accounts for 68.1% of gross domestic product (GDP). In order to translate gains in income into spending, we need to know the savings rate. As of October 2019 consumers were saving on average

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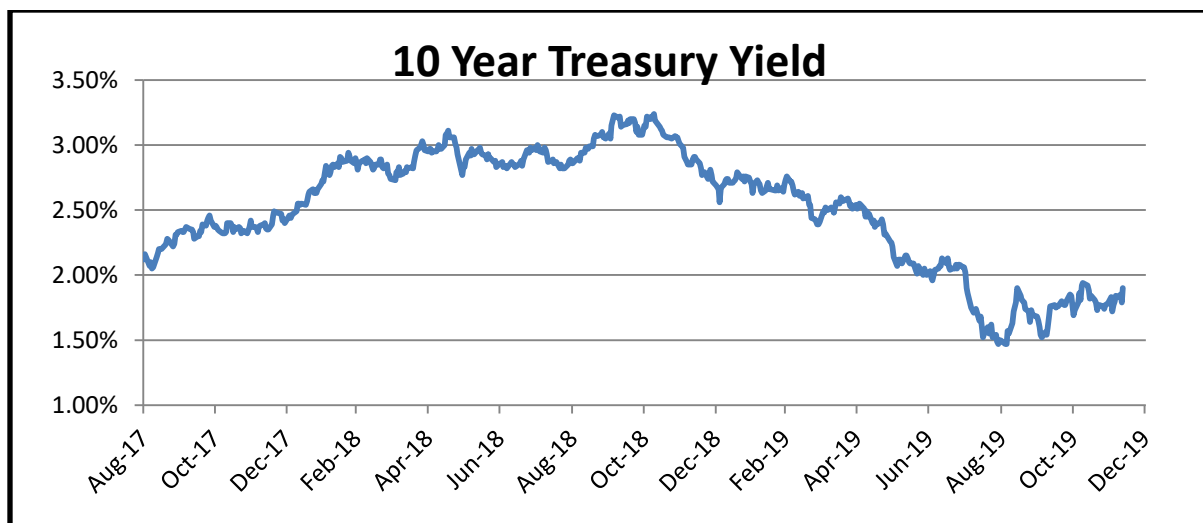
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7.8% of disposable income. Therefore if the number of jobs increases 2% in a year and wages increase 3.5%, then combining this information we can estimate that this should increase consumer spending for goods and services by 5.1%<sup>1</sup> over the year. Since most retail sales are to consumers, we can use this information to estimate the impact on revenue for the retail industry. This explains why the very strong jobs report that came out on December 6, 2019 caused retail stocks to rise. The retail sector exchange traded fund (ticker XRT) jumped 2.3% that day.

The consumer savings rate also comes into play if we are interested in the impact of investment flows. As savings rates increase, the amount of capital generated to be invested in the economy goes up and the demand for goods and services goes down. All else equal, lower demand will mean fewer opportunities for productive investments. Fewer investment opportunities combined with more capital looking to be employed implies we can expect (future) returns on investment to decline. Counter-intuitively, this results in higher current asset prices and higher recent returns for those selling existing assets.

Although the U.S. savings rate is not so high, our economy is open to foreign investment. The flow of savings from high-saving foreign economies (such as China, Japan, and Germany) into U.S. financial markets, depresses interest rates and future returns in the U.S. Therefore a shift in foreign savings rates could have a large impact on interest rates and stock prices here.

Besides consumers, the government sector has a large impact on overall economic demand. Our government generally spends far more than it takes in – meaning it has negative savings. This effectively uses up some of the excess savings from overseas (they buy our government bonds) and helps keep economic growth and interest rates higher than it otherwise might be. The tax cuts that went into effect in 2018 acted to increase income in the private sector and absorb more of the excess savings pouring in from the high-saving foreigners. Without this change in fiscal policy, interest rates would likely be even lower than they are now. If we look at the graph of 10 year government bond yields below, we see that rates indeed rose for most of the period from late 2017 to late 2018.



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<sup>1</sup> Calculated as  $[(1+.02)*(1+.035)-1] * (1- .078)$

The fast growth in the economy after the tax cuts led the Federal Reserve to adjust monetary policy. I.e. they raised short term interest rates during 2018. By late in the year this tightening of monetary policy combined with the President's attempt to re-arrange long established international trade patterns caused market participants to estimate much higher probabilities of recession. Because the market extrapolates such trends to predict decreases in demand for goods and services, we saw a significant decline in the market at the end of 2018 and we see continuing declines in interest rates as the trend towards too much savings and not enough demand (worldwide) reasserts itself.

If we know we are going into an environment with higher probability of recession and declining interest rates this should lead to better performance for defensive sectors of the stock market. Utilities and real estate investment trusts do especially well when long term interest rates are declining. Cyclical industrial sectors would not be expected to do well when the economy is slowing. Conversely, if the macro-economic environment turns more favorable (e.g. trade disputes are settled) the previously mentioned market effects should reverse themselves.

### **Micro-Economic Analysis**

Now let's go down to the micro-economic level of analysis. By that I mean demand and supply for specific products and services that impact prices. A good example comes from the energy sector. In 2005 natural gas drilling companies began combining two techniques that had been around for quite some time: hydraulic fracturing and horizontal drilling. This combination proved extremely effective at increasing gas production and gas output took off in the U.S. A few years later producers realized they could apply the same technique to oil; in 2008 U.S. oil production rose for the first time in 35 years. Since then, oil and gas production in the U.S. has risen dramatically to the point where the U.S. is now a major exporter. Economists refer to this type of technological driven increase in supply as a supply "shock". It is an unexpected shift in the quantity produced for a given market price.

The first effect of this supply shock is a reduction in prices because the large increase in supply is not matched by an increase in demand at a given price and therefore prices drop. Prior to the new shale drilling technology, large oil companies like Chevron spent billions of dollars exploring and developing oil in deep water offshore. These projects made economic sense when a marginal barrel of oil production could be sold for \$70, or more, and projections called for decreasing supply and increasing demand. Now, however, shale drilling has taken over as the source of marginal barrels and the cost per barrel is significantly lower than the cost of developing new deep-water oil sources. Consequently companies who had invested significantly in these more expensive sources of oil became money losers and their assets had to be re-valued much lower by the market. Offshore drilling equipment suppliers found themselves heading for bankruptcy.

The rapid changes in the oil industry since then have led to many bankruptcies. Besides company stocks, energy company bonds and loans have also faced increased default risks and therefore these securities also lost a lot of value from the disruption.

Financial market impacts rippled out to many other industries including the suppliers of steel and pipe used in oil drilling, trucking and railroads, ship building, and others. The point is that when we observe big changes in supply, (or demand) financial asset prices will eventually adjust. On the demand side, government policies can have big implications – though it's not always clear which direction. If the government takes over the health care system, and spends lavishly, it might mean a huge increase in demand for the health care sector. Or we could get rationing as in the U.K. and Canada, and thus a decrease in demand. Smart investors try to anticipate these moves.

All of this may sound complicated; and it is. Whether you make enough profits to make it worth your while will depend upon:

1. your analysis being correct,
2. the majority of other investors eventually agree with your conclusions, and
3. you are able to hold an appropriate investment position long enough to profit.

Depending on your situation, you may be inclined to “ride the coat-tails” of professional investors who have more resources to throw at this sort of thing. The way to do this is to follow realized price trends. In market jargon, you want to invest based upon momentum.

#### **The Momentum Short-Cut**

Academic research shows that stock prices frequently exhibit some amount of momentum. That is, a stock price that starts rising will tend to keep rising for some time and vice-versa. It makes sense that this could happen because it takes a lot of work to analyze information and correctly estimate what it means for security prices. Since most market participants do little or no such analysis, the portion of trading conducted by such informed investors is small relative to total volume. Over time, as more fundamental investors have time to complete their analysis and move money accordingly, such moves will tend to push the price in one direction. At some point, the momentum is enough that the coat-tail riders hop on: they follow the trend and this increases the speed of price adjustment. Of course uninformed traders may push the price too far. This is what creates so-called price bubbles – which eventually must pop.

Momentum investing can produce good profits but it also entails significant risk of being caught by a sudden reversal. I recommend studious attention to risk management for those who pursue this method.

#### **Interpretation Requires Context**

Any signal you may find that points towards buying or selling must be interpreted in the context of the current market price for an asset. As long as there is any uncertainty about the future, there is always some price at which you would want to buy and some price at which you would want to sell. We are talking about valuation here: as prices decline, future returns rise and vice-versa. We need to understand the downside risks to determine whether the potential returns are adequate for these risks - given our investing objectives. For example if you look

at historical valuations for a particular type of Real Estate Investment Trusts (REIT) you may note that these currently trade near the top of their range. It makes sense that this would happen when interest rates are low, but in order to extrapolate recent gains further, (as in using momentum) you would essentially be assuming that interest rates will fall further and take REITs to all time valuation highs. You might be willing to take that bet but you should understand the implications of the bet you are making.

### **Conclusion**

Financial markets are strongly influenced by a constant stream of new information about the economy, politics, and government. Investors who are interested in beating the market must stay informed and do the analysis to predict longer run impacts on industries and securities prices. We can look at price trends as a way to look over the shoulder of such studious investors, but we will always be one step behind them if we follow that way. This can be a decent strategy, but it has more risks and thus we need to keep in mind the context of historical valuations before committing significant money to betting on uncertain trends.

### **Quantitative Investment Strategy Results**

Six years ago, we implemented a quantitative strategy on a test basis. The goal for this strategy is to outperform passive strategies across various market environments. Assuming we allocate some portion of equity exposure to this strategy, it could serve to reduce the variation in our returns relative to the market in up-markets.

Because our goal with this strategy is to reduce volatility of our return variance versus the market, the portfolio is designed so that industry weightings are approximately in line with the overall market's industry weightings. We did not, however, put any constraint on the size of the companies chosen for the portfolio. Given that larger capitalization stocks are more efficiently priced in the market, we expected the portfolio to be weighted more towards small and mid-cap stocks. In fact the portfolio varied in composition widely from month to month, but on average it has been 42% large capitalization, 23% mid-cap, and 35% small capitalization.

Over the long run smaller capitalization companies tend to outperform larger companies in generating returns for investors. The last six years has been unusual in that this has been reversed: larger capitalization companies have done much better relative to smaller ones than we should expect going forward. Therefore, we would like to isolate this effect in evaluating the Quant Portfolio. This is important because we are really interested in how it would perform over the long run, not just in the late years of a bull market. If the strategy can outperform a blended benchmark with similar capitalization composition, that is likely to be a good indicator of long-run relative performance. The chart below plots the cumulative returns of the Quantitative Investment Strategy compared to the S&P 500 and a "Multi-Cap Blend" benchmark. The Multi-Cap Blend is a weighted average of large, medium, and small capitalization market indices<sup>2</sup> where the weights are equal to

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<sup>2</sup> Large was S&P 500, mid-cap was S&P Midcap 400, small was Russell 2000

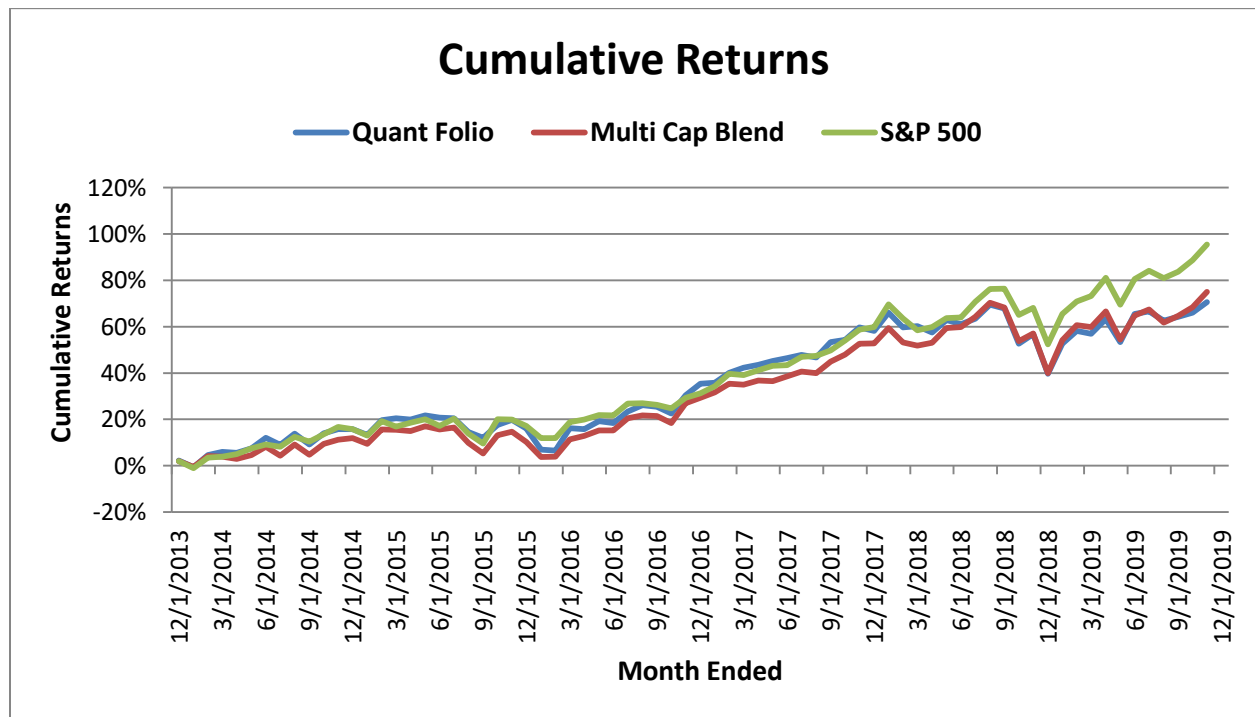
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the average capitalization weightings of the Quantitative strategy over the six years. The returns in this chart are from a “watch portfolio” rather than an actual account but they have been adjusted assuming a fee of 1.25% which would apply for accounts between \$500,000 and \$1 million.

The chart shows that for the first four years, the return (after fees) for the Quantitative Strategy outperformed the annual return on the S&P 500 by 0.17% and it outperformed the Multi-Cap Blend benchmark by 1.31% annually. Its total return over the first four years was 59.7%. This a very good result. Over this period, the tracking error is within a small range and the strategy produced a nice spread over the comparable blended index return.

Over the last 2 years, however, the performance has dramatically dropped off. The strategy gained just 6.8% over the 2 years ended 11/30/2019 compared to a gain of 23.2% for the S&P 500 and 14.6% for the multi-cap blended benchmark. Given the quantitative nature of this strategy it is difficult to identify what factors may have led to this dramatic change in performance. The most likely explanation is simply the change in the market environment in 2018. Volatility increased significantly and there were many reversals. By this I mean certain types of stocks were oscillating between being in favor and out of favor. The quantitative strategy has as one of its components a momentum following factor. Because this portfolio is rebalanced monthly, such an on and off market could lead to weighting towards stocks that went up and then suffering the reversal of fortune.



The net result is that over the full 6 years, this Quantitative Equity strategy produced an annualized return of 9.3% compared to 9.8% for the Multi-Cap Blend benchmark and 11.8% for the S&P 500.

In 2020 our goal will be to do in depth research on quantitative strategies to find a system with lower tracking error than the current system.

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