



In Pursuit of Value

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Why Electric Cars Are Good for Fossil Fuels

As regular readers will know, we are bullish on the long term prospects for U.S. energy production and the associated energy infrastructure operated by Master Limited Partnerships (MLPs). A friend and client of ours recently stopped by in her new Tesla Model X-P90D, an impressive-looking vehicle that can achieve 0-60 mph in three seconds (3.2 to be precise). We know other Tesla owners, and they invariably love their cars. Tesla's vision statement is "...to create the most compelling car company of the 21st century by driving the world's transition to electric vehicles."



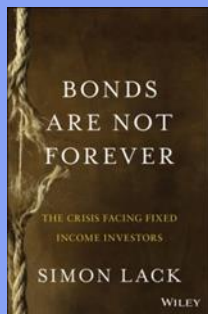
It reminded me of a question that investors often ask, which is how do we think the MLP business will cope with a shift of the U.S. auto fleet from gasoline-powered vehicles to electric ones like the Tesla. There's much to consider on this score. My partner Henry is, as I've noted before, responsible for most of our good ideas and none of our bad ones. At a recent social gathering someone asked Henry if we were worried about electric vehicles (EVs) eliminating an important

source of demand for fossil fuels. Henry's normally impeccable Southern manners momentarily deserted him as he responded by asking the questioner if the needed electricity would be generated by Tesla drivers rubbing their heads (i.e. harnessing static electricity, assuming they're not bald). Put another way, an emission-free car can still be causing emissions somewhere.

Burnished environmental credentials are often claimed by Tesla purchasers as well as by the buyers of hybrid vehicles. A report eighteen months ago by the [National Academy of Sciences](#) examined the overall environmental impact of several different types of automobile technology both on air quality and the global climate (via greenhouse gas emissions). As we noted in [Energy's Winners and Losers](#), realizing the emissions benefits of electric cars will require a shift in the sources of electricity generation in the U.S. Around a third of our electricity is generated by coal, and the pernicious effects are such that simply taking the "grid average" emissions to produce electricity renders gasoline vehicles a cleaner choice today. If EVs were evenly distributed across the U.S., the pollution from operating them would leave us worse off. Despite Elon Musk's marketing efforts to marry solar power and Tesla in consumers' minds, solar is the source of less than 1% of electricity generation. However, since the NY/NJ area generates 90%+ of its electricity from Natural Gas, Nuclear and Hydro our local Tesla drivers are a force for good.

Another unappreciated consideration is in the production and disposal of different types of vehicle. Production of sophisticated battery cells generates pollution too, so when you add in the environmental impact of manufacturing and eventually disposing of EVs, they lose some of their perceived benefit. The net result is that fully realizing the opportunity of EVs requires

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cleaner battery manufacturing as well as electricity generation, which means more natural gas and greater use of lightweight, recycled materials in the production of EVs. Wind, solar and hydro-power are best, and while the Energy Information Administration expects renewables to increase from 13% to 18% of the total over the next twenty five years driven by federal tax credits and mandated state renewable standards, burning coal and natural gas will continue to provide roughly two thirds of our electricity.

If demand for EVs did take off, we'd also need a significant increase in electricity generating capacity. Estimates range widely from 19% more to as much as 2.5 times what we use during the Summer. Keynes said, "In the long run we are all dead." and that captures the likely time needed for such a switch to happen. It'll be a later generation's issue. But even in our lifetimes, a modest upside surprise in EV purchases would likely increase demand for natural gas to produce electricity. The lighter the hydrocarbon molecule, the cleaner it burns and methane moves from the wellhead exclusively by pipeline. MLP investors are also fans of Tesla.

Investors Require Less

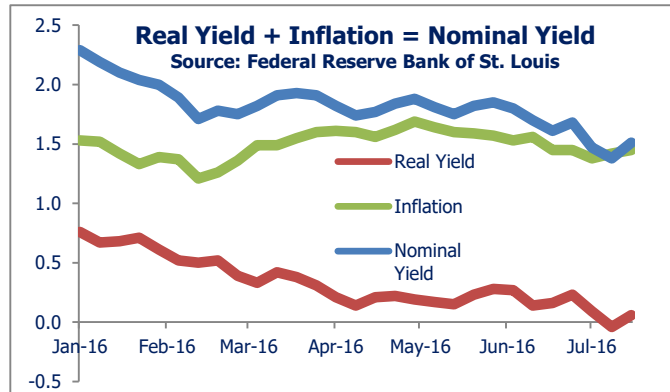
The drop in bond yields this year has, as usual, surprised many market participants. What's received less attention is that expectations for inflation have not changed appreciably. Therefore, real returns on treasury securities and by extension all assets have been falling.

U.S. Treasury Inflation-Indexed Securities ("TIPS") provide a useful measure of the real return required by investors to hold treasuries, since the principal repayment a TIPS investor receives at maturity is adjusted along the way for actual inflation. Therefore, the yield on TIPS is a fairly precise estimate of the return in excess of inflation (the Real Return) sought by investors.



As the yield on TIPS shows, real yields have dropped to zero. It's happened before but is still fairly unusual. Why investors changed their real return expectation so sharply is a mystery. Going back to 1928 the ex-post real return on ten year treasuries is 1.9%. Fluctuations in inflation cause good and bad years, so the above average most recent trailing ten year real return of 2.8% (2005-2015) was because inflation consistently came in below expectations. Theoretically, the real return reflects the price at which the supply of, and demand for, capital net out. It ought not to move so quickly, but like many things in Finance, once you

can trade something it fluctuates more. This is what's caused the drop in treasury yields. If falling inflation expectations had caused lower treasury yields, this might have been interpreted as a bearish forecast of slower economic activity ahead. However, falling real returns suggests a more confident outlook and was



certainly a factor for some of the investors whose buying helped drive stocks to recent all-time highs.