PPHB

ENERGY INVESTMENT BANKING

MUSINGS FROM THE OIL PATCH

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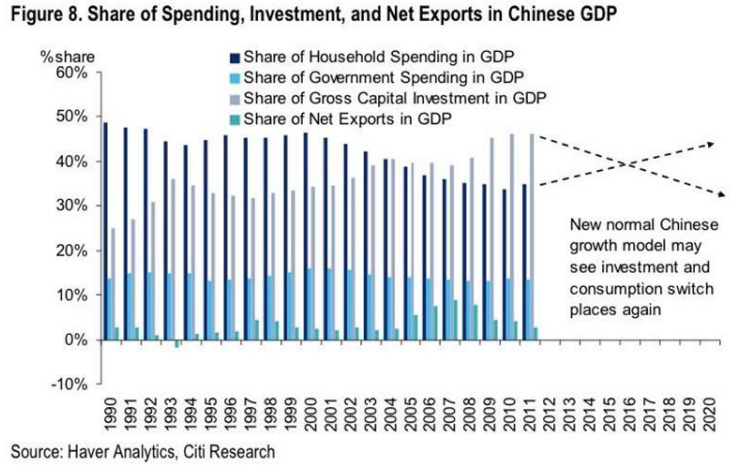
Note: *Musings from the Oil Patch reflects an eclectic collection of stories and analyses dealing with issues and developments within the energy industry that I feel have potentially significant implications for executives operating and planning for the future. The newsletter is published every two weeks, but periodically events and travel may alter that schedule. As always, I welcome your comments and observations.* Allen Brooks

What Does End Of The Supercycle Mean For Energy?

There is a high probability that demand from China is slowing faster than people expect

Recently, one of the leading proponents of an energy independent North America, Ed Morse of Citigroup Research, proclaimed the end of the commodity super-cycle. "It is now clear that the commodity super-cycle is over," said Mr. Morse in a *Bloomberg News* interview earlier this month. He went on to say, "No longer will a pure long-only strategy bring the returns expected in 2002-2008. Nor will conditions approximating those of the last decade return anytime soon." Mr. Morse's view is shaped by his belief that there is a high probability that demand from China is slowing faster than people expect. That slowdown is driven by a shift underway from investment-led growth in favor of greater household consumption, a transition that will take time and reduce the ability of the government to provide direct stimulus to the economy.

Exhibit 1. China Investment Shift Hurts Commodities



Source: Citi Research

When the next downturn comes, he believes, government support will shift away from state-owned enterprises and large capital projects in favor of households

An investment manager living in Singapore and writing on a blog agrees that China is going to experience an economic slowdown with a commensurate shift in spending emphasis. But what he doesn't foresee is the large demand slump suggested by Mr. Morse. His reasoning is that for a slump to occur, it will take a huge change in the attitude of the new leaders of China, something he doesn't see happening until the next down-cycle. He believes the new leadership in China is not reformers and that the "princelings" are more interested in supporting the vehicles through which they amassed their wealth. When the next downturn comes, he believes, government support will shift away from state-owned enterprises and large capital projects in favor of households, which will be good for the long-term economic health of China but devastating for the Chinese Central Committee leaders and their cronies.

Mr. Morse believes that North America is becoming one homogeneous market since Canada has few opportunities to build pipelines to export their production to markets beyond the U.S.

Without the aid of China's insatiable appetite for commodities, Mr. Morse sees the growth in oil, natural gas and mineral supplies from places such as Iraq, the United States, Canada and Australia overwhelming the growth in demand even given moderate growth from other developing economies around the world. Where growth will remain strong, he believes, is for electricity, but much of that increase will be fueled by coal and natural gas. In the case of oil, Mr. Morse believes that North America is becoming one homogeneous market since Canada has few opportunities to build pipelines to export their production to markets beyond the U.S. Additionally, there is at least one million barrels per day (mmb/d) of crude oil output offline in Iran and another 1 mmb/d offline due to production disruptions in Kazakhstan and Sudan. This lost production has been more than made up by increased North American and Iraqi output plus higher Saudi Arabian production. As Mr. Morse is quick to point out, high oil prices have taken care of the problem of high oil prices!

The structural bull market in oil prices that existed between 2003 and the first half of 2008 was driven by ever rising long-dated crude oil prices

The growth in U.S. oil production, coupled with the present ban on exporting oil, has been seized upon by several Wall Street firms leading them to predict that oil prices are likely headed lower in 2013, and possibly for longer. Goldman Sachs (GS-NYSE) recently lowered its 2013 oil price forecast to $110 per barrel from its prior $130 per barrel projection. In the firm's view there has been a "structural shift" in the crude oil market. The structural bull market in oil prices that existed between 2003 and the first half of 2008 was driven by ever rising long-dated crude oil prices, which were required by the industry in order to induce new investment in oil production capacity. Now that we are seeing the outcome – in the U.S., Canada and deepwater - from the surge in new oil investment, the growing production is acting to keep long-dated crude oil prices stable. Therefore, the upward momentum in global crude oil prices has ended.

Another investment bank, Bank of America/Merrill Lynch, sees the possibility of lower crude oil prices due to growing domestic oil

Refiners will use the growing domestic oil "glut" to force prices lower helping them to boost their profit margins

output. Without the ability to export crude oil and with domestic demand continuing to remain weak, U.S. refineries are and will be struggling to use all the new domestic light oil production, much of which is coming from the Eagle Ford formation in South Texas that is close to the Gulf Coast refineries. As that oil use grows it will back out ocean-borne imports of light crude oils. Future domestic light oil volumes coupled with additional heavier crude oil supplies from the Midcontinent region, partly related to increased oil sands output shipped from Canada, will threaten the stability of domestic oil prices. Refiners will use the growing domestic oil "glut" to force prices lower helping them to boost their profit margins. Given this scenario, BoA/ML sees the possibility that West Texas Intermediate oil prices could fall as low as $50 per barrel. The big question would then become: how long this low price environment might last. The growth in oil consumption will provide part of the answer, but finding ways to reduce the excess supply is another. Pressure to change the law allowing oil exports could build next year, forcing a political battle between the oil industry and its supporters and the public that would benefit from lower oil prices. In the interim, it will be price that sorts out the oil market until sufficient new transportation infrastructure is built that would improve the efficiency of the existing oil distribution network.

He believes this seismic shift in the commodity sector means all commodities will be impacted

There appears to be a growing number of variations on the theme of the end of the commodity super-cycle that Mr. Morse has suggested, but his seems to be the most well thought out. He believes this seismic shift in the commodity sector means all commodities will be impacted, although others believe the shift will cause little disruption. Mr. Morse believes that returns from investing in commodities will be more differentiated among raw materials in the future depending on their specific supply/demand balances. This is why he argues that long-only commodity investment strategies will not be as successful in the future as in the past. His view contrasts with that of Jeremy Grantham of investment manager GMO. Mr. Grantham recently authored a detailed analysis of the long-term future of the U.S. economy and proclaims that its historical growth of 3% per year is now no longer possible due to demographic and productivity trends that he sees little hope of reversing. Furthermore, he believes that resource prices are likely to continue rising at the 7% per year rate he says has existed since 2000 as we run out of cheaper resources to exploit. The combination of these trends suggests to Mr. Grantham that our future economic output will be consumed merely trying to secure the resources to keep it running, thereby providing little or no growth in the future. There is even the possibility that our economic trend could begin to decline if any of these trends proves worse than he anticipates.

Mr. Grantham's analysis plays off some of the work done by Dr. Robert Gordon of the Department of Economics at Northwestern University who recently published a paper ("Is U.S. Economic Growth Over? Faltering Innovation Confronts The Six Headwinds")

He believes the United States is now facing six headwinds that are in the process of dragging down our long-term economic growth rate to half or less of the 1.9% annual increase experienced between 1860 and 2007

under the auspices of the National Bureau of Economic Research. The paper is merely a small segment of the analytical work he is performing for a book he is writing that questions the fundamental assumption that economic growth is a continuous process that will persist forever. Dr. Gordon's analysis suggests that the economic progress made by the American economy over the past 250 years marks a unique period in our and human history that likely will not be repeated. He believes the United States is now facing six headwinds that are in the process of dragging down our long-term economic growth rate to half or less of the 1.9% annual increase experienced between 1860 and 2007. Those headwinds include: 1) demography; 2) education; 3) inequality; 4) globalization: 5) energy/environment: and 6) the overhang of consumer and government debt. Are analysts such as Mr. Grantham and Dr. Gordon merely the latest Malthusian proponents? Will their views prove as wrong as those of Thomas Malthus in the 1790s? Or is it possible Patrick Leach, CEO of Decision Strategies, will prove correct. He recently wrote, "In the long run, Malthus has to be right; it's just a question of when. Humanity's need for ever-increasing quantities of resources *must* [emphasis his] bump up against the availability of those resources." Or has he confused reserves with resources, something many promoters of oil and gas shales tend to do when debating the future of the oil and gas industry.

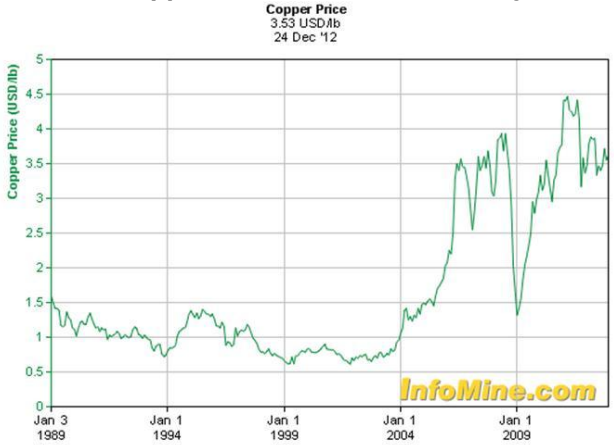
"I suspect that we're headed now for two decades down as far as commodity prices are concerned. This is the sunset of the big commodities super-cycle."

We could devote many issues of the *Musings* to examining the arguments of these analysts and what their conclusions, if right, might mean for America. That, however, is not the purpose of our newsletter, so we will try to summarize only a few of their key points related to energy. Mr. Morse's view about the super-cycle is driven largely by his perception of a marked change in China's growth rate. That view is mirrored in the opinion of Ruchir Sharma of Morgan Stanley (MS-NYSE) who was quoted in a CNBC interview that "China's growth is downshifting to a lower plain; it's very commodity-intensive phase of growth is coming to an end. This to me marks a big decade of increase in commodity prices coming to an end." He went on to say, "I suspect that we're headed now for two decades down as far as commodity prices are concerned. This is the sunset of the big commodities super-cycle." Not everyone agrees as Mr. Grantham, albeit negative on U.S. economic growth, is quoted in his report writing, " If the price trend of commodities continues upward, which I believe is nearly certain, then commodity company profits and their stock performance will continue to outperform as they have magnificently since the game changed in 2002." Mr. Grantham obviously believes that commodity prices will continue to outstrip the cost of finding and developing them, something that seems to be changing based on the number of large mineral companies that recently have halted investment in new large mining projects. We also know that many oil and gas companies continue to operate with negative cash flows meaning they must continually seek new outside capital to fund their operations. However, as Mr. Grantham points out, the real prices of energy and metals more than doubled

The real prices of energy and metals more than doubled in the five years from 2003 to 2008, while the real price of food commodities increased 7.5%

In the five years from 2003 to 2008, while the real price of food commodities increased 7.5%. The chart in Exhibit 2 shows the historical price trend for copper, which is indicative of the move in metals prices cited by Mr. Grantham. During that boom time, the earnings of energy and mining companies were growing rapidly, and their stock prices appreciated accordingly.

Exhibit 2. Copper Prices Show Commodity Boom

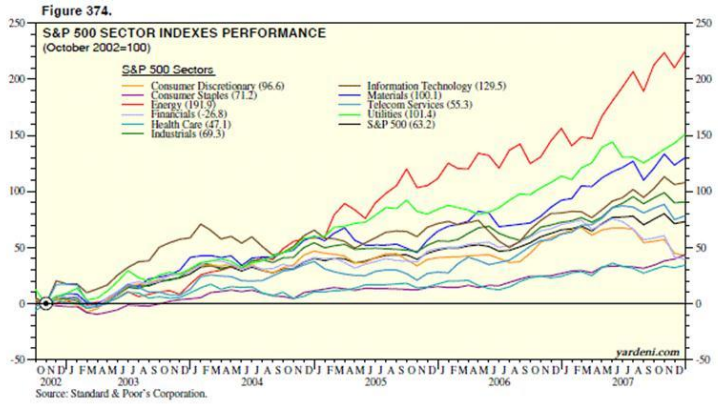


Source: ***InfoMine.com***

The performance of energy and metals prices was directly translated into the performance of the shares of companies involved in these sectors

The performance of energy and metals prices was directly translated into the performance of the shares of companies involved in these sectors. We have two charts (Exhibits 3 and 4) produced by Dr. Ed Yardeni, which show the performance of the sectors of the Standard & Poor's 500 Index since 2002. The first chart shows what happened to the sectors between 2002 and 2007. Energy stock prices rose by three-times what the overall S&P 500 index increased, while the materials sector increased by about one and a half times the overall market.

Exhibit 3. Energy And Materials Outperformed

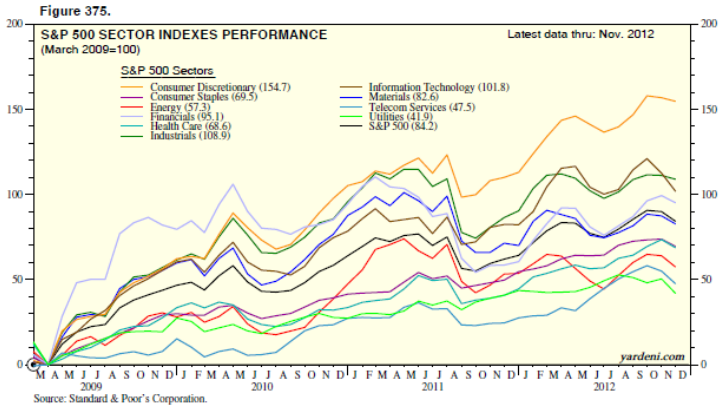


Source: Yardeni Research

The lack of growth has translated into much weaker performance for the energy and materials sectors in recent months, which has shown up in the performance of their shares

Between the end of 2007 and the start of 2009 came the financial crisis and the onset of the recession that wiped out most of the price gains for metals and energy. It also negatively impacted the profit margins of the energy and mining companies. Since the end of the recession, the industrialized world, and its largest energy consumers have struggled to produce much economic growth. Even less-developed economies have experienced growth problems. The lack of growth has translated into much weaker performance for the energy and materials sectors in recent months, which has shown up in the performance of their shares. From the end of the recession in early 2009, the materials sector has marginally underperformed the overall stock market while energy has only grown by about 70% of what the market has grown.

Exhibit 4. Energy And Materials Grossly Underperformed



Source: Yardeni Research

"Non-oil price super-cycles follow world GDP, indicating they are essentially demand determined; causality runs in the opposite direction for oil prices"

According to a study done by Bilge Erten of the United Nations and Dr. José Antonio Ocampo of Columbia University, there have been four super-cycles during 1865-2009 ranging between 30-40 years in length and with amplitudes 20-40% higher or lower than the long-term trend. The conclusion of their study was that "Non-oil price super-cycles follow world GDP, indicating they are essentially demand determined; causality runs in the opposite direction for oil prices…Tropical agriculture experienced the strongest and steepest long-term downward trend through the twentieth century, followed by non-tropical agriculture and metals, while real oil prices experienced a long-term upward trend, interrupted temporarily during the twentieth century." The details of their study's conclusions are presented in Exhibit 5 on the next page.

One thing we noticed was that in each of the first three super-cycles the authors identified crude oil prices peaked later than all the other commodities. Yet in the most recent cycle, oil peaked earlier than everything except for metals, but followed its peak by just one year. It was also interesting to note that the two recent cycles for crude oil lasted for slightly less than half the length of the first crude oil cycle

Exhibit 5. History Of Commodity Super-cycle Performance

COMMODITY SUPERCYLE				
Total non-oil commodity prices				
	1894-1932	**1932-1971**	**1971-1999**	**1999-ongoing**
Peak year	1917	1951	1973	2010
Percent rise in prices during upswing	50.20%	72.00%	38.90%	81.30%
Percent fall in pricesduring downswing	-54.60%	-43.30%	-52.50%	-
Length of the cycle (years)	38	39	28	-
Metal prices				
	1885-1921	**1921-1945**	**1945-1999**	**1999-ongoing**
Peak year	1916	1929	1956	2007
Percent rise in prices during upswing	105.70%	66.60%	98.00%	202.40%
Percent fall in prices during downswing	-70.20%	-51.90%	-47.40%	-
Length of the cycle (years)	36	24	54	-
Upswing	31	8	11	8
Downswing	5	16	43	-
Total agricultural prices				
	1894-1932	**1932-1971**	**1971-1999**	**1999-ongoing**
Peak year	1917	1951	1973	2010
Percent rise in prices during upswing	52.80%	90.30%	52.00%	76.60%
Percent fall in prices during downswing	-56.20%	-49.60%	-56.00%	-
Length of the cycle (years)	38	39	28	-
Upswing	23	19	2	11
Downswing	15	20	26	-
Non-tropical agricultural prices				
	1894-1932	**1932-1971**	**1971-1999**	**1999-ongoing**
Peak year	1917	1951	1973	2010
Percent rise in prices during upswing	119.80%	81.70%	66.10%	59.70%
Percent fall in prices during downswing	-57.40%	-49.50%	-58.00%	-
Length of the cycle (years)	38	39	28	-
Upswing	23	19	2	11
Downswing	15	20	26	-
Crude oil prices				
	1892-1947	**1947-1973**	**1973-1998**	**1998-ongoing**
Peak year	1920	1958	1980	2008
Percent rise in prices during upswing	402.80%	27.40%	363.20%	466.50%
Percent fall in prices during downswing	-65.20%	-23.10%	-69.90%	-
Length of the cycle (years)	55	26	25	-
Upswing	28	11	7	10
Downswing	27	15	18	-
Source: UN report 'Super-cycles of commodity prices since the mid-nineteenth century'				

Source: ***Zawya.com***

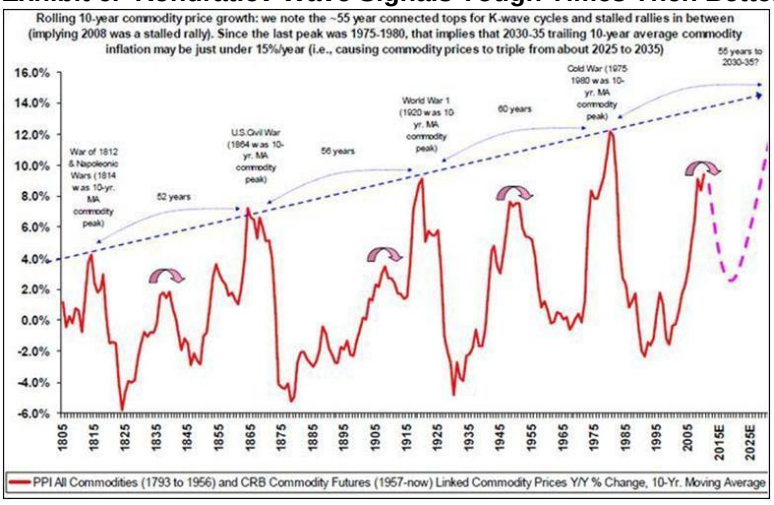
The prospect of an additional 10-15 years of falling or little oil price appreciation is certainly not attractive for energy investors, but it would likely receive a huge welcome from energy consumers

(26 and 25 years, respectively versus 55 years). If we assume the current oil cycle were to last as long as the most recent two cycles, then we should expect 15-16 years of down-cycle, of which we have already completed four years. The prospect of an additional 10-15 years of falling or little oil price appreciation is certainly not attractive for energy investors, but it would likely receive a huge welcome from energy consumers. Carrying this thought further, it is conceivable that flat to lower energy costs could be the savior of our current economy and actually prove to be the catalyst that revives economic growth. It would be the one critical assumption in Mr. Grantham's dour view about the future of the American economy that would prove his analysis wrong, putting him up there with Thomas Malthus.

Soviet economist Nikolai Kondratiev hypothesized that the economy moved in very long (50-60) cycles with three distinct phases – expansion, stagnation and recession

If, however, you believe Mr. Grantham's analysis may prove correct, then you will probably like the following chart that capitalizes on applying the principle developed by Soviet economist Nikolai Kondratiev that hypothesized that the economy moved in very long (50-60) cycles with three distinct phases – expansion, stagnation and recession. The Soviet Union did not support his analysis so they confined him to a gulag in Siberia. His cycle analysis, it turns out, was supported by the work of two Dutch economists who wrote about this historical pattern at about the same time as Mr. Kondratiev, but their analysis was not translated from Dutch into English until recently. Famed economist Joseph Schumpeter named the cycle analysis hypothesis the Kondratiev Wave in honor of Mr. Kondratiev. Exhibit 6 is a chart that applies the Kondratiev Wave to commodity prices since 1805. Based on the cycle-analysis, commodity prices should be heading lower until about 2017-2018 before beginning a climb to a new record high sometime in the 2030-2035 period.

Exhibit 6. Kondratiev Wave Signals Tough Times Then Better



Source: Stifel Nicolas

As investors become increasingly more convinced that current industry trends will continue and even ramp higher in the future, they often increase their bets on the sector by buying more shares in the companies in it

Is there a precedent for this cycle analysis? If we look at the performance of energy stocks and the overall stock market since 1970, we believe there is. But before we examine the energy picture, it is appropriate for us to comment on the overall stock market and investor sentiment shifts in general. Investors purchase stocks in companies where they foresee rising profits and dividends in the future. That means investors are keenly watching and absorbing economic and industry trends that helps foretell the future for these companies. As investors become increasingly more convinced that current industry trends will continue and even ramp higher in the future, they often increase their bets on the sector by buying more shares in the companies in it. That phenomenon shows up in the increased weight a sector has within the stock market, or a broad-based stock market index such as the Standard

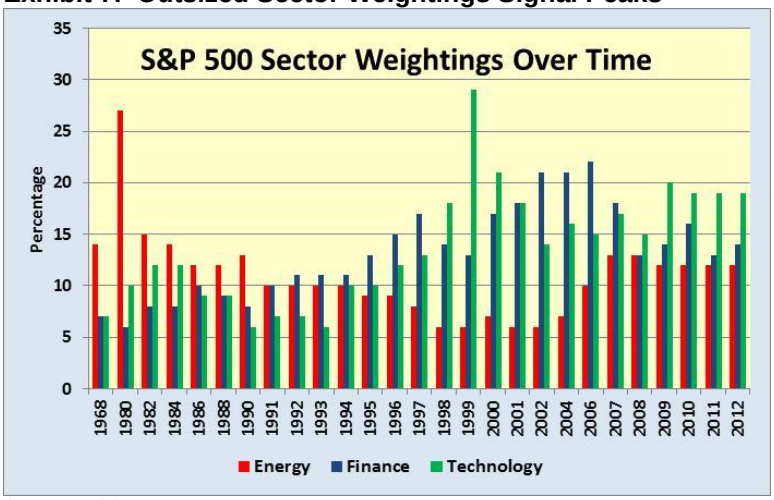
The chart shows that energy had a weighting of 27% in the S&P 500 Index in 1980, the historical peak for the industry's cycle up until that point

& Poor's 500 Index. To demonstrate how investor sentiment can be both right and wrong, we have charted the weighting for three S&P 500 sectors – energy, finance and technology – since 1968. While the data is only available for selected years until recently, the point is clearly demonstrated in Exhibit 7. The chart shows that energy had a weighting of 27% in the S&P 500 Index in 1980, the historical peak for the industry's cycle up until that point. Likewise, technology reached a 29% weighting in 1999 immediately prior to the top of the dot.com bubble the following year. More recently, the finance sector reached its peak in 2006 shortly before the onset of the financial crisis in 2008.

Contrarian investors often use the outsized weighting as their signal that the stocks may be approaching an impending market peak, although it is often not clear what will cause the industry's fortunes to change, or when that change will become evident

The point of this analysis is that investors become enamored with "hot" investment sectors just about the time they should become cautious about that industry's financial future. When the stock market weighting becomes outsized, it should become a red flag. Contrarian investors often use the outsized weighting as their signal that the stocks may be approaching an impending market peak, although it is often not clear what will cause the industry's fortunes to change, or when that change will become evident. Likewise, investors often look for sectors with extremely low weightings as an indicator to see if things might improve, which would drive the stocks higher. One investment strategy is to buy the worst S&P 500 sector in one year in hopes it will be the top sector in the following year. One investment newsletter is currently recommending energy, which was the second to worst sector in 2012 as the potential top performer for 2013.

Exhibit 7. Outsized Sector Weightings Signal Peaks



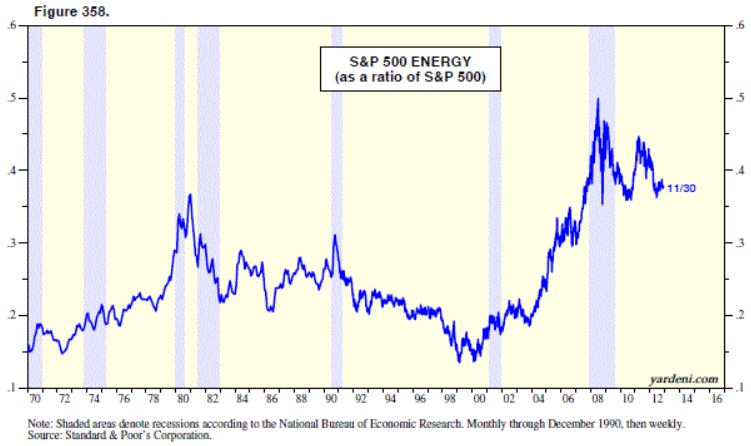
Source: S&P, PPHB

In setting forth our analysis of energy investing, and reinforcing the view about the significance of the most recent bull market for crude oil, and how investors embraced it, the chart in Exhibit 8 shows the ratio of the S&P 500 energy sector as a percentage of the overall

The surge in oil prices from $3.30 per barrel to $36.50 in less than a decade caused two global recessions, rampant inflation, energy conservation and an explosion in oil and gas exploration and development activity worldwide

S&P 500 Index since 1970. What is seen at the far left of the chart is the start of the energy bull market of the 1970s and early 1980s. That period was marked by the rise of OPEC's pricing power in the late 1960s, which was first exercised in 1973 with the quadrupling of oil prices coupled with the embargo of crude oil shipments to western countries that supported Israel against Egypt and Syria in the Yom Kippur War. In 1978, the Iranian Revolution brought to power a radical Islamist regime that was anti-American, seized and held 52 American hostages at the U.S. embassy in Tehran for 444 days along with cutting off its oil exports, which contributed to the dramatic jump in oil prices to a then record $36.50 per barrel in 1980. The surge in oil prices from $3.30 per barrel to $36.50 in less than a decade caused two global recessions, rampant inflation, energy conservation and an explosion in oil and gas exploration and development activity worldwide. As Alaska and North Sea oil and gas production grew, along with output from other areas of the globe, oil prices weakened and eventually collapsed when OPEC's internal squabbling over how to share shrinking demand erupted into an all-out petroleum war between Saudi Arabia and the other OPEC members. World spot oil prices fell in 1986 to $9 a barrel with domestic contract prices down to about $11 a barrel. Their collapse, however, ignited one of the greatest economic booms in American history that lasted until the turn of the century when the dot.com bubble burst setting off another recession. That was followed soon thereafter by the terrorist attacks of 9/11.

Exhibit 8. Weighting Of Energy Sector In S&P 500



Source: Yardeni Research

An impetus for the rise in global oil prices was the explosion in Chinese oil demand in 2004

The economy struggled to recover following the recession and the terrorist attacks. As the less-developed economies emerged as the primary economic driver, global growth was restored and commodity prices, including that of oil rose. An impetus for the rise in global oil prices was the explosion in Chinese oil demand in 2004 that was unforeseen by the International Energy Agency (IEA) thus catching markets by surprise. The price rise was also helped by the

The great commodity boom referenced previously was unleashed and lasted until it met its demise as a result of the 2008 financial crisis and the subsequent global recession of 2008-2009

exhaustion of super cheap natural resources at the same time prospects for their demand becoming insatiable. This outlook drove the mineral and energy industries to dramatically ramp up their capital spending devoted to finding and developing new sources of supply – all of which were going to cost substantially more than current costs. The great commodity boom referenced previously was unleashed and lasted until it met its demise as a result of the 2008 financial crisis and the subsequent global recession of 2008-2009. Since the recession ended, the world has struggled to generate growth commensurate with historical levels. Today, the world economy appears to be now firmly ensconced in a slow-growth environment as policy makers and politicians struggle to find ways to stimulate their economies with little success.

As this improved industry profitability became evident through increased drilling, investors steadily pushed up their commitment to energy stocks

The weighting of the energy sector within the overall market as reflected in Exhibit 8 mirrors the ups and downs of the energy business over the past 40 or so years as outlined previously. Until the 2003 to 2008 commodity boom, the peak in energy's importance in the stock market occurred at the end of the 1970s. The shift in energy's weighting reflects how investors viewed the prospects for the sector's share prices. If we look at the history of energy's weighting during the 1970s to mid-1980s, there is an interesting pattern. After falling in importance in 1970-1972 the weighting reversed with the first OPEC price increase that signaled a change in the economics of oil companies. As this improved industry profitability became evident through increased drilling, investors steadily pushed up their commitment to energy stocks. We then experienced an explosion in energy's investing importance beginning in 1979 with the Iranian revolution and the loss of 12% of global oil supplies, but that importance only lasted until the end of 1980. The peak in energy stocks coincided with the announcement of the discovery of a huge new Russian oil field in Western Siberia. While the impact of that oil would not be felt for at least a decade, investors sensed the global balance in the supply and demand for oil was shifting in favor of greater supply and less demand, suggesting lower oil prices in the future. The energy weighting dropped and then bounced back up but then slowly declined until it plummeted to a new low in 1986, which coincided with the collapse in oil prices orchestrated by Saudi Arabia.

A new low for energy interest was established about 1999, which coincided with the peak of the Internet stock bubble

As the chart in Exhibit 8 shows, the 1986 low point was followed by a climb in the energy weighting, but investors steadily abandoned energy securities with the exception of a brief period in 1990 that was driven by the sharp rise in oil prices immediately preceding the start of the first Gulf War in the fall of 1990. After that spike, the trend in investor interest in energy stocks steadily eroded as investors embraced technology stocks. A new low for energy interest was established about 1999, which coincided with the peak of the Internet stock bubble. The energy weighting in 1998-2000 jumped up and then fell coinciding with the Asian currency crisis and resulting Asian recession. The low point established at that time

was below any prior low since 1970. From that low point, energy slowly gained increasing investor interest, partly due to investors abandoning technology in the early 2000s and views boosting the importance of energy given the launching of the War on Terrorism following the 9/11 attacks on the U.S. Investor interest in energy was also helped by energy and commodity prices rising on the back of the insatiable demand from China, which helped spark the commodity boom of the middle 2000s until the financial crisis ushered in a severe global recession as we approached the end of the decade. Since that commodity boom-driven peak and the recession-induced decline, energy's weighting rose and then fell in recent months due to concerns over surging oil and gas production in North America coupled with weak consumption growth due to the anemic economic recovery.

Investor interest in energy was also helped by energy and commodity prices rising on the back of the insatiable demand from China

If we follow a similar historical pattern in the current cycle, then we might pick the energy weighting of 2006-2007 as the level we must return to in order to repeat the historical cycle. That means from the current energy weighting in the S&P 500 index of about 0.375, we need to drop back to about 0.30 to 0.31. That is not a welcome conclusion, especially for an energy analyst or an energy investor. We will caution, however, that even if the decline exceeds the level we are suggesting on the downside, it doesn't necessarily mean the demise of the energy business such as we experienced in the mid-1980s. Of course that conclusion assumes we do not experience another Black Swan event such as the meltdown of OPEC solidarity as happened in the 1985-1986 period. The key reasons we believe that aspect of history won't repeat is because energy companies are much better managed with balance sheets significantly less levered than in the mid-1980s. That doesn't mean that some current workers won't lose their jobs and that some marginal companies might not go bankrupt, but a wholesale devastation of the industry and its host communities is unlikely to occur.

The key reasons we believe that aspect of history won't repeat is because energy companies are much better managed with balance sheets significantly less levered than in the mid-1980s

Let's look at a couple of additional charts that might shed light on the outlook for energy markets and stocks. The first chart shows the performance of the S&P 500 Index relative to the U.S. commodity market. As the key to the chart states, when the line rises then the stock market is beating the commodity market and when the line is falling, then the opposite is occurring. As the chart demonstrates, there was a sharp drop in the stock market's performance relative to commodities at the start of the 1970s when oil prices jumped and inflation lifted many other commodity prices. The line reversed shortly after the peak in oil prices in the early 1980s and the resulting recession destroyed mineral demand and prices. The line continued to advance until the peak of the dot.com bubble in 2000. From that point forward commodity prices began to perform better driven by the demand from less developed economies that eventually translated into the commodity super-cycle that ended with the financial crisis in 2008. Much like the Kondratiev Wave scenario for commodity prices shown in Exhibit 9, hitting the top of the

There was a sharp drop in the stock market's performance relative to commodities at the start of the 1970s when oil prices jumped and inflation lifted many other commodity prices

relative outperformance for the stock market versus the commodity market will not happen for several more years.

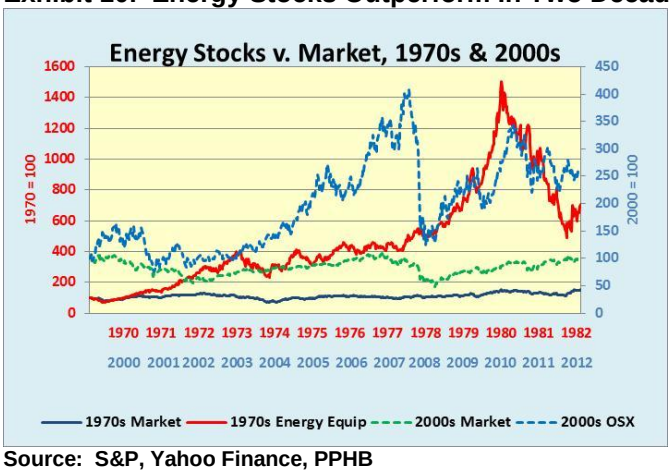
Exhibit 9. Stocks/Commodities Reflect Countertrends

Source: *businessinsider.com*

The 1970s and the 2000s were good periods for energy prices and, correspondingly, energy stocks

Let's turn more directly to energy stocks in light of these macro analyses of commodity prices and overall stock market sector performance. As we have already established, the 1970s and the 2000s were good periods for energy prices and, correspondingly, energy stocks. To understand what that really means, we have constructed a chart that shows the performance of the overall stock market, using the S&P 500 Index as the measure, and the energy equipment and service stocks in the S&P index during the 1970s and the Philadelphia Oil Service Index (OSX) for the 2000s. In the chart in Exhibit 10, we show the performance of the two energy stock indices versus that of the S&P 500 for the 1970-1982 and 2000-2012 periods. The solid lines are for the indices' performance for the 1970s while the dotted lines are for the 2000s indices.

Exhibit 10. Energy Stocks Outperform In Two Decades



Source: S&P, Yahoo Finance, PPHB

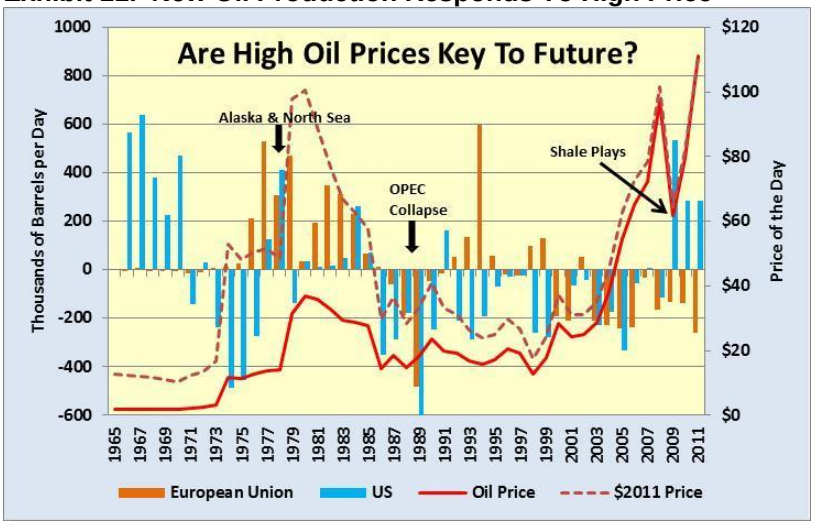
Over the entire period plotted, the energy stocks achieved a nearly 750% return while the broad market only increased by about 70%, or nearly a tenfold beat

During the 1970s, the energy equipment and service stocks wildly outperformed the market. Over the entire period plotted, the energy stocks achieved a nearly 750% return while the broad market only increased by about 70%, or nearly a tenfold beat. By choosing 1982 as the ending date, we arbitrarily reduced the performance of energy stocks. Had we only measured energy stock performance to the 1980 peak, the return was about 1,500% compared to the stock market increasing by about 50%. On the other hand, the 2000s era shows that while energy equipment stocks outperformed the overall market, that performance was much less than in the earlier period. Energy stocks only increased about 350% during the 12-year period while the stock market was flat. Again, had we measured to an earlier point such as 2007 or 2010, energy stocks would have shown greater outperformance than measured over the longer time period.

One can also see that the huge rise in oil prices in the great commodity boom period of 2003-2008 appears to be partly responsible for the jump in oil production from shale formations in the U.S.

As we have previously mentioned, the high oil prices that emerged during the 1970s spurred an explosion in exploration and production from new and prolific sources. Exhibit 11 shows the growth in North Sea and U.S. oil production that emerged due to these higher oil prices and also the impact on production growth in these same regions from the collapse of oil prices in the 1980s. One can also see that the huge rise in oil prices in the great commodity boom period of 2003-2008 appears to be partly responsible for the jump in oil production from shale formations in the U.S. Since Europe is well behind North America, and especially the United States, in developing its oil shale resources, it is not surprising that Europe is not contributing to the growth in non-OPEC-controlled oil resources. Will the surge in oil production in response to the rise in oil prices eventually lead to a dramatic decline in prices when demand does not grow fast enough to soak up the growing production?

Exhibit 11. New Oil Production Responds To High Price

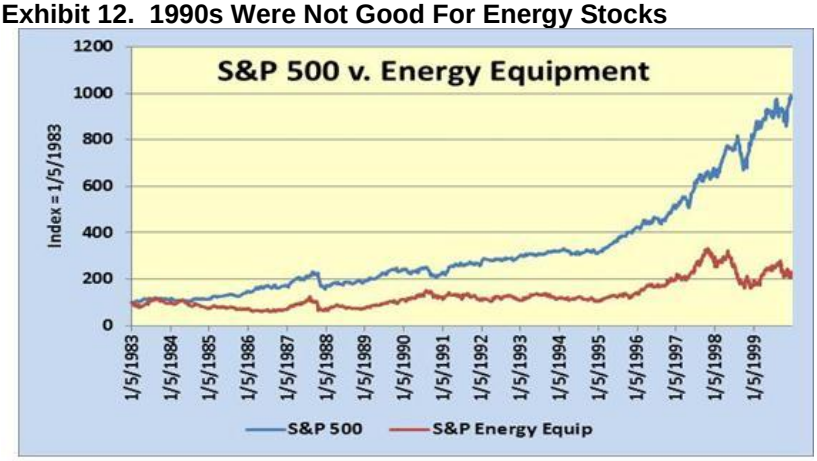


Source: BP, PPHB

As oil demand retreated for nearly a decade due to high oil prices and the resulting push for more efficient cars, appliances and homes, the profitability of the oil barrel was transferred from oil producers to oil consumers

The implication for energy markets if history repeats the 1980s and 1990s is that we could be in for an extended period of underperformance of energy stocks versus the overall stock market. That underperformance would be due to low oil prices encouraging the revival of American industries and consumer spending boosting the earnings and outlooks for non-energy stocks. That is exactly what happened following the peak in oil prices in the early 1980s. As oil demand retreated for nearly a decade due to high oil prices and the resulting push for more efficient cars, appliances and homes, the profitability of the oil barrel was transferred from oil producers to oil consumers. This shift was best exemplified by the bitter and extended battles among the OPEC members over their share of a shrinking market in the 1980s.

Exhibit 12. 1990s Were Not Good For Energy Stocks



Source: S&P, Yahoo Finance, PPHB

Source: S&P, Yahoo Finance, PPHB

It does seem to us, however, that the fundamentals are ripe for another "rhyme," so be prepared

The end of the commodity super-cycle is attributed to growing supplies of oil and metals and shrinking demand through conservation and slower economic growth. When you read all these analyses paying less attention to the details of the authors' arguments and more to the implications for the bigger economic and investment picture, you have to be impressed with the similarities to the past energy industry cycle. We are all familiar with Mark Twain's quote that "history doesn't repeat itself, but it does rhyme." We could say that the 2000s rhymed with the 1970s as energy stocks outperformed in both periods, but the latter period's outperformance was considerably less than the earlier one. Will the underperformance of energy stocks in the future match that of the 1980s and 1990s? Maybe, or maybe not – no one knows. It does seem to us, however, that the fundamentals are ripe for another "rhyme," so be prepared.

Bad News For Canada's Oil And Gas Industry Outlook

Within the last two weeks, the oil market delivered some bad news for oil and gas companies operating in Western Canada. The bad news can be summarized by the headline of an article on the commodity page of the *Financial Times*: "Canada's oil becomes cheapest in world amid glut in Alberta." The forces that have created this situation include surging oil production, lower demand due to refinery maintenance and a chronic shortage of pipeline capacity to move growing volumes beyond the regional Canadian market. The impact of these conditions caused the price for Western Canada Select, the regional benchmark for low quality, viscous heavy oil, to fall below $45 a barrel, less than half the cost of other crude oil benchmarks. This price disparity is estimated to be costing the Canadian oil and gas industry about C$2.5 billion per month, or an annualized income loss of C$30 billion, or about 1.6% of Canada's gross domestic product.

The impact of these conditions caused the price for Western Canada Select, the regional benchmark for low quality, viscous heavy oil, to fall below $45 a barrel, less than half the cost of other crude oil benchmarks

With the price of Canada's heavy oil this low, it is selling for less than half the $111 a barrel price (December 26, 2012) consumers are paying for Brent oil, the global oil benchmark. Furthermore, Canada's oil is now selling at about $41 a barrel below the United States' benchmark West Texas Intermediate crude oil, which in turn is trading nearly $23 a barrel below Brent. The gap between WTI and Canada's oil price is the most since December 2007. Prospects are that the situation is likely to get worse in the first half of 2013 before it improves. These low levels for the benchmark crude oils of North America reflect surging production in the United States that has been unleashed by the oil shale revolution and the rise in Canada's oil sands output. Based on the latest data available from the Energy Information Administration (EIA), Canada's oil production has climbed above four million barrels a day (mmb/d) while U.S. production is the highest it has been since 1998. Until oil consumption ramps up, or Canada finds another export market or the U.S. government liberalizes its oil export restrictions, the glut in North American heavy oil will continue to grow.

The gap between WTI and Canada's oil price is the most since December 2007

Since 2000, with the growth in oil sands output, Alberta's total oil production has increased by about 1.4 mmb/d. Plans call for an additional 100,000 barrels per day of oil sands output coming on line early next year from Imperial Oil Company's (IMO-NYSE) new Kearl mine. Canada's production growth is about equal to the output of Libya, a mid-sized OPEC producer, showing the significance of the country's new output in the global oil market. Until this production glut is resolved, Canada' crude oil will continue to sell at a steep discount to other benchmark crude oils, costing Canadian producers significant cash flow. That means there is a growing likelihood that as this wide price gap continues producers will be forced to reduce their expenditures compared to what they would spend otherwise. That could be bad news for the Canadian oil and oilfield service industry in the second half of 2013 if the pricing gap doesn't shrink.

Until this production glut is resolved, Canada' crude oil will continue to sell at a steep discount to other benchmark crude oils, costing Canadian producers significant cash flow

Housing And Auto Sales Up: Historical Patterns Returning?

Both sets of statistics support the emerging view that the recovery that began for housing earlier this year is not only well underway but will continue to strengthen in 2013

In the last few days of the year, the government released statistics on the health of the housing market in November and S&P/Case-Shiller released its latest survey on housing prices in 20 metropolitan markets for the month of October. Both sets of statistics support the emerging view that the recovery that began for housing earlier this year is not only well underway but will continue to strengthen in 2013. The house pricing survey showed prices down sequentially from September, but up 4.3% compared to a year ago. Turning to the automobile sector, J.D. Powers and LMC Automotive released their latest estimates for December 2012 light-duty vehicle sales suggesting they would increase 14% over last year, or at a 15.3 million unit annualized rate. If auto sales actually reach that level, it will be down either slightly, according to the forecasters' estimates, or meaningfully, based on *Automotive News'* calculation for the November's sales rate.

To set the stage for what prompted us to write this article, we have a series of charts addressing the housing and auto markets.

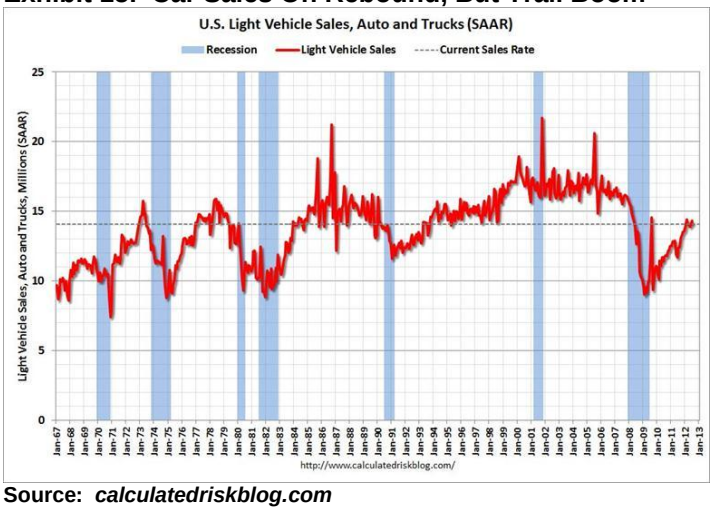
Exhibit 13. Housing Starts Rebounding From Low

Source: ***calculatedriskblog.com***

Exhibit 14. Housing Prices Reflect Further Strength

Source: S&P/Case-Shiller

Exhibit 15. Car Sales On Rebound, But Trail Boom



Source: *calculatedriskblog.com*

The column focused on the strategies of the Big Three automakers to participate in alternative transportation markets beyond light-duty vehicles given trends unfolding

While investor sentiment has become quite positive for housing and autos, we would point out that the recent improvements, when viewed in the context of their historical record, suggests we are talking about modest recoveries and not booms. Both industries experienced booms in the 2000s that were ended with the financial crisis of 2008. The contrasting views of the short-term versus the long-term trends for the housing and auto industries set the stage for our reaction to a Christmas Eve column in the *Financial Times* that sent us to our research files seeking additional information about the underlying trends impacting these sectors. The column focused on the strategies of the Big Three automakers to participate in alternative transportation markets beyond light-duty vehicles given trends unfolding. The three car companies – General Motors (GM-NYSE), Ford (F-NYSE) and Chrysler – are reacting to data showing

that young people are delaying learning how to drive and that more young professionals are moving to city centers, where the need for cars is reduced.

Ford started studying these trends after Ms. Connelly noticed that the proportion of 16-year-olds holding driver's licenses in the United States fell from 50% to 30% between 1978 and 2008

Statistics revealing these trends about young people and their auto and housing choices, subjects we have written about in the past, appear to be receiving increased attention at year-end. We're not sure whether the greater attention reflects the absence of other newsworthy topics or serious strategic moves by the automobile companies. In the column, Sheryl Connelly, Ford's futurologist, discussed what has influenced her company's thinking. Ford started studying these trends after Ms. Connelly noticed that the proportion of 16-year-olds holding driver's licenses in the United States fell from 50% to 30% between 1978 and 2008. She said that Ford recognized there would eventually be days in major cities where the best travel choices involved transportation options that excluded light-vehicles. As she put it, "The future of mobility is going to be multi-modal. It's going to be context and purpose-driven." The question was what could Ford do to impact the choice of young people who were interested in automobiles to choose Ford?

General Motors is studying whether to start manufacturing, selling or managing sharing systems for electric bicycles

The General Motors executive director for urban mobility said that increased urbanization globally had changed his company's thinking about its future business strategy. A move General Motors has made, which it upped its bet on recently, is its investment in Proterra, a North Carolina-based builder of electric buses. Additionally, General Motors is studying whether to start manufacturing, selling or managing sharing systems for electric bicycles. It seems the only thing General Motors isn't considering is an investment in a shoe manufacturer to capitalize on greater walking in urban areas.

In 2010, adults between the ages of 21 and 34 bought just 27% of all new vehicles sold in America, down from the peak of 38% in 1985

Ms. Connelly suggested that "There's an attitudinal shift that's happening." Young adults have more alternatives to the car. She pointed to Portland, Oregon, as a new-edge city that has successfully encouraged greater bicycle use, and that public transport is much better in many cities than it was 30 years ago. "The car doesn't hold the same imagery that it did in the Sixties or Seventies," says Ms. Connelly. Reflecting the changed status of the automobile, in 2010, adults between the ages of 21 and 34 bought just 27% of all new vehicles sold in America, down from the peak of 38% in 1985. Miles driven are down, and between 1998 and 2008, the proportion of teenagers with a driver's license fell by 28%.

The question seems to be: How do you sell cars to the Millennials, aka Generation Y? General Motors has enlisted youth-brand consultants at MTV Scratch, a corporate cousin of the TV network, to give its cars some 20-something edge. John McFarland, General Motors' 31-year-old manager of global strategic marketing, says, "We just think nobody truly understands them yet." Doug O'Reily, a spokesman for Subaru says that "We're trying to get the emotional

connection correct." All the car makers are working to make their cars integrate better with mobile phones and other mobile devices that play a central role in many young adult's lives.

As part of its strategy, Ford has agreed with Zipcar, the car-sharing service, to provide cars for its outlets on 250 U.S. college campuses

As part of its strategy, Ford has agreed with Zipcar, the car-sharing service, to provide cars for its outlets on 250 U.S. college campuses. According to Mark Norman, the company's president and CEO, who reported details from a survey Zipcar conducted of Millennials, "And this generation said, 'We don't care about owning a car.' Cars used to be what people aspired to own. Now it's the smartphone." The history of Zipcar demonstrates these trends at work. The company was founded in 2000 when the average price of gasoline was $1.50 a gallon and iPhones didn't exist. Now Zipcar has emerged as the largest car sharing company in the world with 700,000 members. Its success is due to the rise in gasoline prices that made car-sharing more appealing. Likewise, smartphones became ubiquitous, which helped make car-sharing easier. As Ms. Connelly of Ford puts it, young people prize "access over ownership." She went on to say, "I don't think car-buying for Millennials will ever be what it was for the Boomers."

Between 2006 and 2011, the homeownership rate among adults younger than 35 fell by 12%

When you shift to housing, one has to ask whether the trends impacting the auto sector are also at work in the housing sector. According to Harvard University's Joint Center for Housing Studies, between 2006 and 2011, the homeownership rate among adults younger than 35 fell by 12%. Nearly two million more young Americans were living at home due to the recession. So will further recovery in the economy spur a homeownership increase? A Fannie Mae survey earlier this year showed that nine out of ten Millennials say they eventually want a place they own. The combination of low pay (average incomes for individuals aged 25-34 are down 8%, double the adult population's total income decline, since the recession began in December 2007), low savings, higher unemployment (the unemployment rate for 25-34 year olds is 0.5% to 1.0% above the national average), tighter bank lending standards, along with student debt stalk young house buyers. It seems clear that homeownership rates are highly unlikely to return to the peaks they hit during the housing bubble, but they are likely to recover some as time goes on.

A 2007 survey by RCLCO found that 43% of Generation Y would prefer to live in a close-in suburb, where both the houses and the need for a car are smaller

Maybe more important for the American economy, however, is the likelihood that traditional suburbs will continue to fall out of favor with Millennials in favor of "urban light," or denser suburbs that revolve around a walkable town center. A 2007 survey by RCLCO found that 43% of Generation Y would prefer to live in a close-in suburb, where both the houses and the need for a car are smaller. One needs to only look at the development of Houston to see this trend at work. The growth of the Mid City area over the past 15-20 years, the revival of other close-in to downtown areas, and the move by the city council to increase the density of homes per acre for the area between the 610 Loop and Beltway 8 to the same density as within

the 610 Loop and the explosion in high-rise living facilities are all examples of the attitudinal shift toward living arrangements.

The conclusion of an article in *The Atlantic* earlier this year dealing with youths in this country sums up what may be the long-term impact on the American economy from the trends driven by Millennials. The article closed saying, "Ultimately, if the Millennial generation pushes our society toward more sharing and closer living, it may do more than simply change America's consumption culture; it may put America on firmer economic footing for decades to come." Economic research shows that doubling a community's population density tends to increase productivity by anywhere between 6% and 28%. On the other hand, smaller houses built in dense mixed-use neighborhoods generally take longer to build than McMansions in the suburbs. By being smaller that means fewer fixtures and furnishings for the homes, so their construction will have less of an economic uplift. Additionally, both construction and automaking are primarily blue-collar employers, while technology companies tend to have employment skewed toward the top of the socioeconomic ladder. This means some people will be hurt if we never return to the "normal" economy of the pre-financial crisis era. Offsetting those losses, however, is that young people will have left-over money if they don't buy new homes and cars that will not all be directed to electronic gadgets. Some of that surplus money will probably be spent on more education that could prove valuable in an "ideas economy" that seems to be what the American economy has evolved into. The housing and auto sector recoveries are a positive and will be treated by the stock market as such, but they will have much less economic power than they had in earlier years.

Economic research shows that doubling a community's population density tends to increase productivity by anywhere between 6% and 28%

Aging Stuff May Help Boost Economy In Short-term

A chart in *Bloomberg BusinessWeek* magazine shows the aging of household furnishing, appliances, automobiles and all consumer durable goods owned in America and provides an interesting perspective on what might help boost our economy in the future. We find the lines for each category of assets in the chart (Exhibit 16) indicative, but we question the scale of the chart. We know from all the automobile data we track and the auto articles we read that the American automobile population is somewhere around 11 years old, a factor that has caused many auto analysts to predict an extended climb in auto sales as their owners need to replace these old vehicles.

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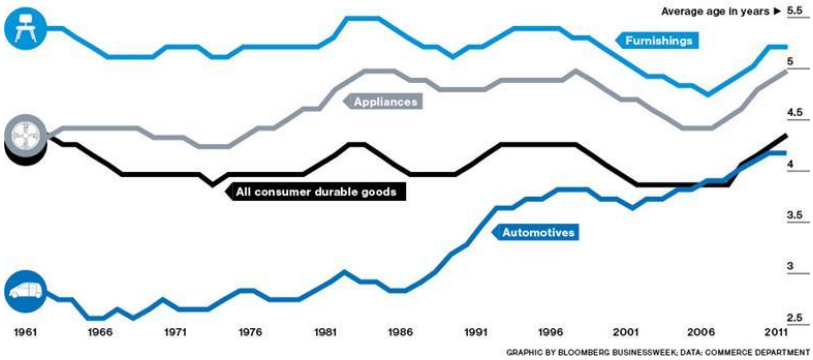
Exhibit 16. Aging Stuff Replacement To Drive Economy



Source: ***Bloomberg BusinessWeek***

The age of America's home furnishings is less today than in 1961, maybe reflecting the long housing boom, especially for larger homes needing more furnishings

As the lines show, automotives (not sure whether this includes things other than autos) are at their historical peak in age. The auto fleet's average age rose slowly from 1961 until the early 1980s before dropping back and then climbing sharply to a new plateau from 1991 to 2001. The fleet average age then rose slowly until the financial crisis decimated new vehicle sales. We also noted that both furnishings and appliances have aged sharply since the mid-2000s, largely due to the recession. It is interesting that the age of America's home furnishings is less today than in 1961, maybe reflecting the long housing boom, especially for larger homes needing more furnishings. The fact that the average age of appliances is higher is somewhat surprising since the category should reflect the same trend as furnishings. According to the chart, those of us with old stuff will probably be in the market to replace that stuff at some point in the near future. That should help the future economy and our energy consumption.

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