McCullough Research

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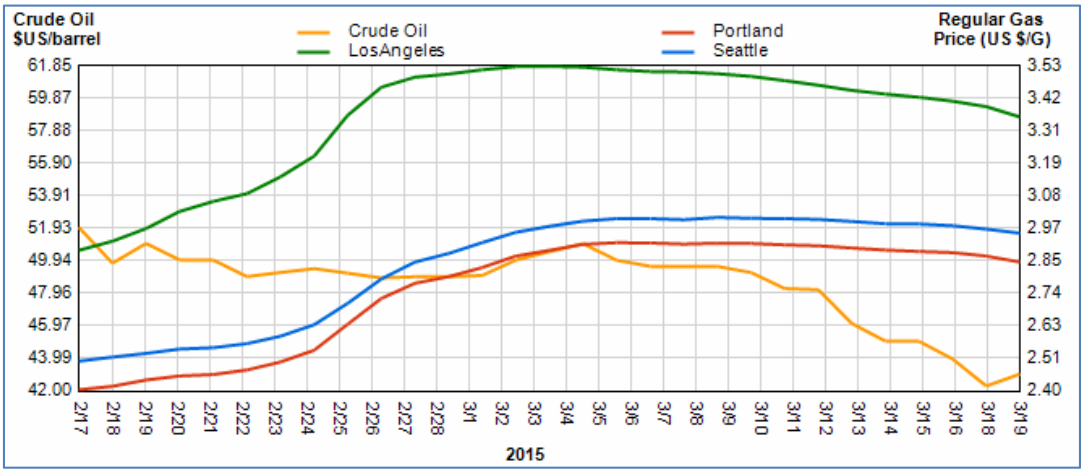
To: McCullough Research Clients

From: Robert McCullough

Subject: Market Power in West Coast Gasoline Markets

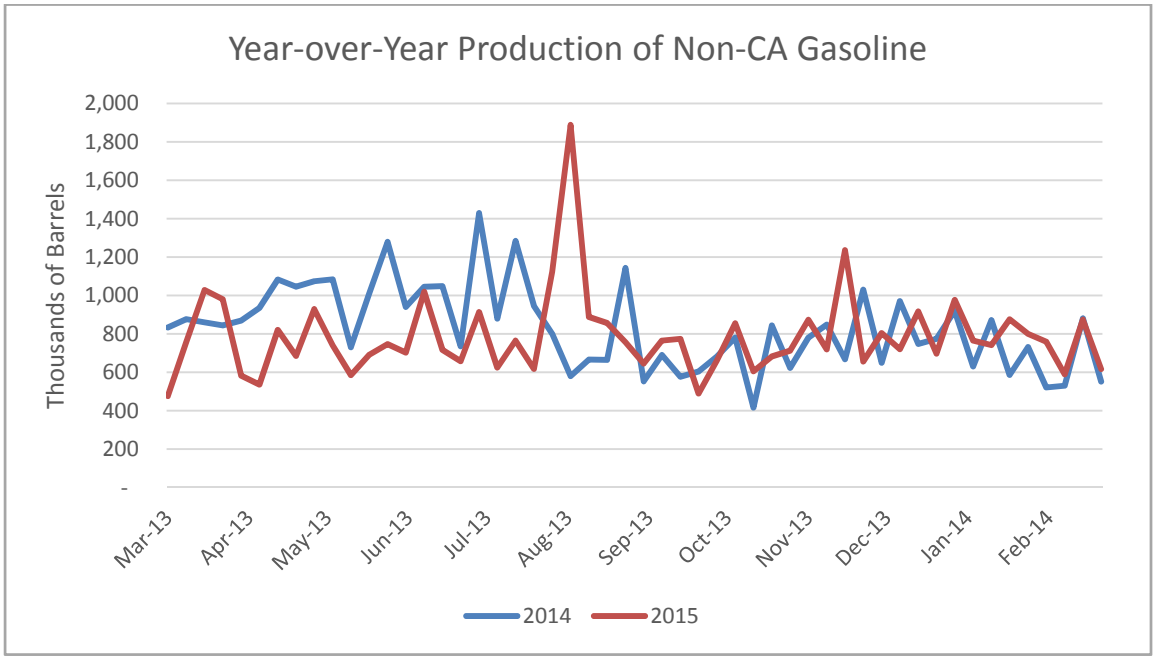
On February 18, 2015 an explosion took place at the Exxon-Mobile refinery at Torrance, California. The severity of the accident is as yet unclear, but while retail gasoline prices increased markedly, California's production levels and inventories were unaffected. In fact, contrary to some comments in the press, the supply situation is more favorable to consumers than it was the previous year. Overall, consumers have paid $500 million more than they should have over the past month.

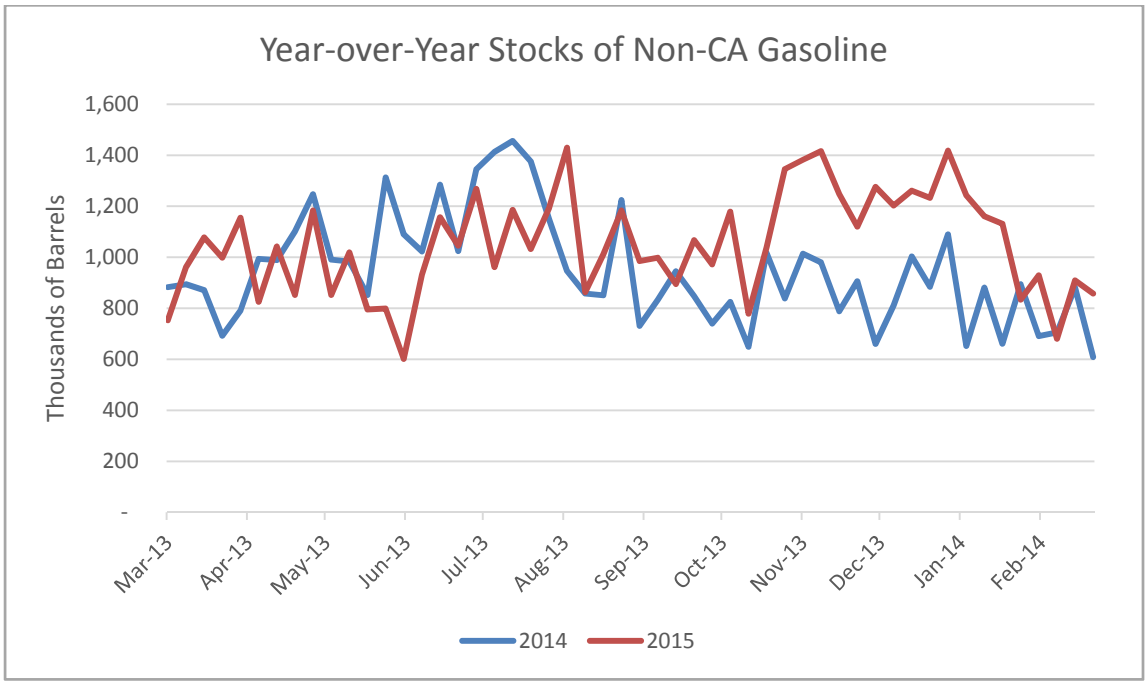


A logical, although incorrect, inference is that the accident in Torrance presented a major change in the West Coast gasoline supply. While data for Oregon and Washington is scarce, California provides a detailed weekly report on gasoline production and inventory levels.[1] In this case, average production of non-CARBOB gasoline in California is up 13% compared to a year ago, while the inventory level of non-CARBOB gasoline is up 11% compared to last year. Oil prices, of course, have fallen dramatically over the last year. Since the accident in California, world oil prices have fallen another 18%.

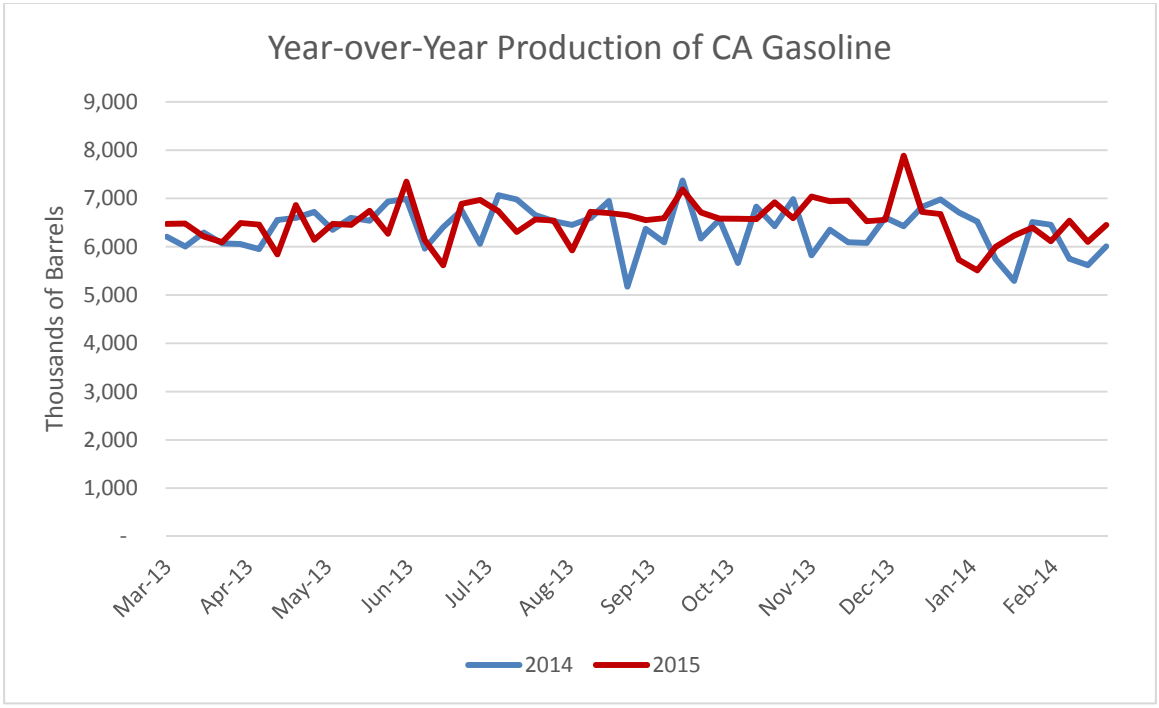
[1] http://energyalmanac.ca.gov/petroleum/fuels_watch/

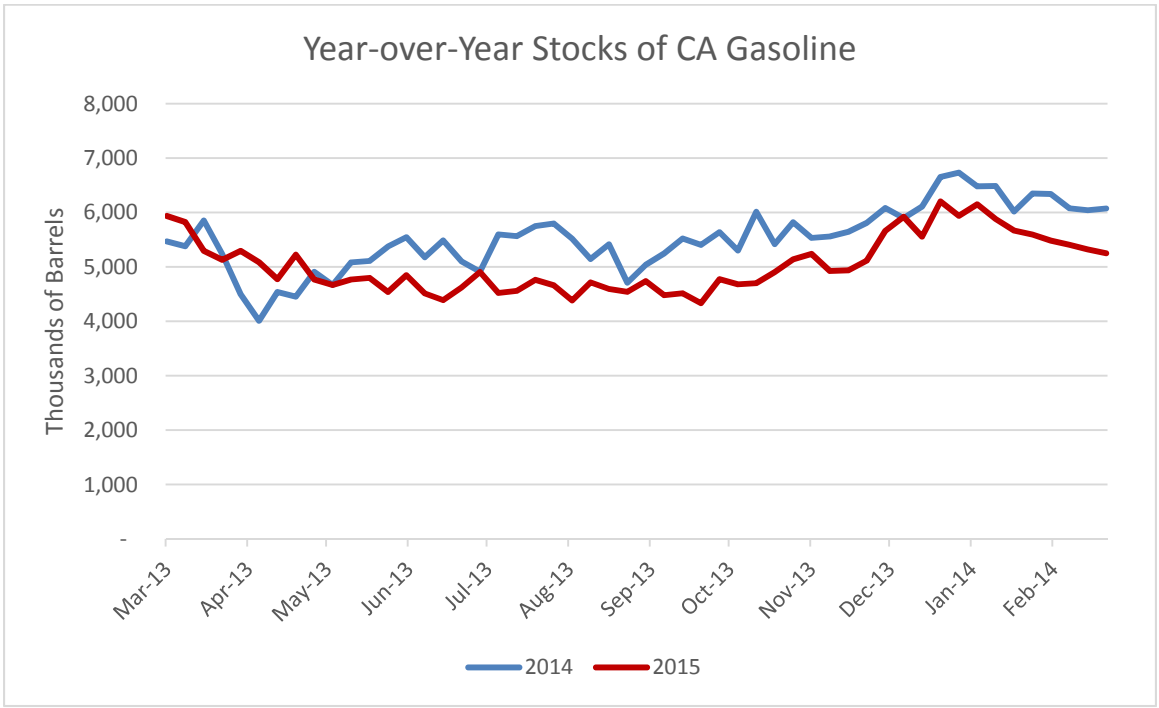
A simple year to year comparison of the last twelve months indicates that any changes are well within the usual week to week variations:





The effect on the production and stored reserves of CARBOB has also been minimal:

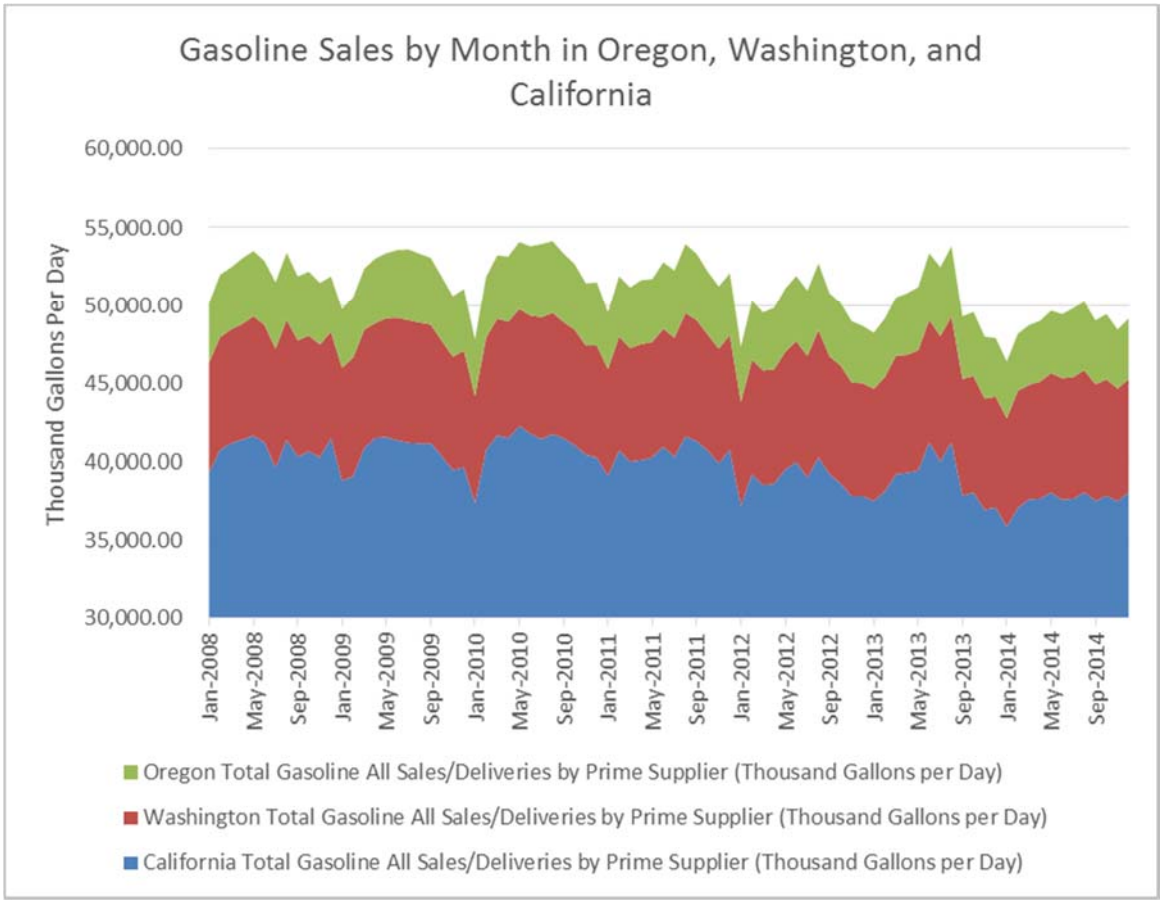




California reformulated gasoline blendstock for oxygenate blending (CARBOB) is the title commonly used to gasoline specifically formulated for the California market. It is made to provide lower emissions than standard gasoline. California refineries tend to supply all CARBOB as well sharing the West Coast's non-California gasoline market primarily with refineries in Washington state.

If production and inventories do not explain the sudden surge in retail gasoline prices, is it possible that an enormous regional increase in gasoline demand has taken place?

Our gasoline sales data, while slower to come by than California refinery data, would certainly show signs of such a surge. Federal data for Oregon, Washington, and California make a drastic upswing in demand seem very doubtful:



During the great recession, gasoline sales fell as older and less efficient vehicles were retired and they have continued to fall as newly purchased vehicles deliver significantly higher mileage per gallon.

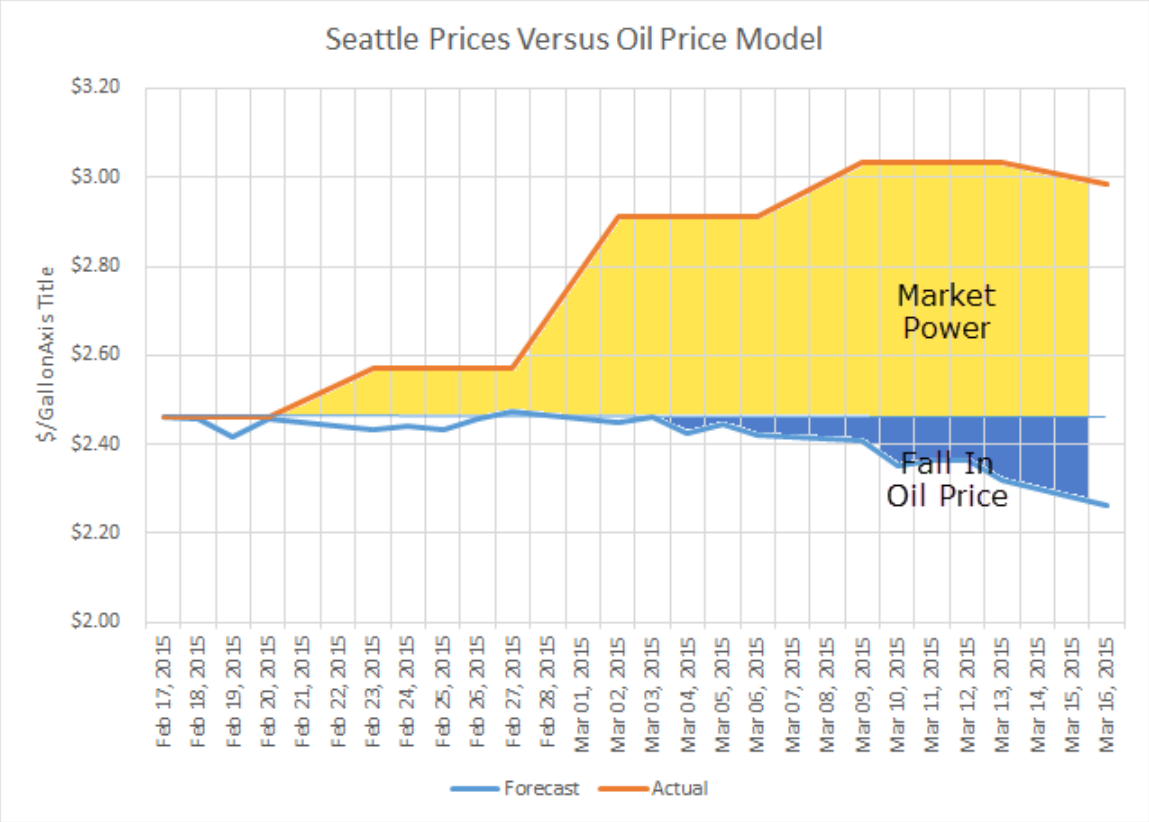
Over the last month, just as during previous price spikes, traditional supply and demand based explanations for West Coast gasoline prices have not been very persuasive. The problem is not with economic theory, but with our tendency to apply the wrong economic theory.

The economic theory most of us were taught in school was the result of work by Alfred Marshall (1842 to 1924). He pioneered many of the graphical tools – such as supply and demand curves – that we teach to undergraduates. Unfortunately, as markets become less competitive and more concentrated, the work of Antoine Augustin Cournot (1801 to 1877) becomes more useful. Marshall taught that perfect competition drives prices to the marginal cost of production. Cournot taught that highly concentrated markets tend to be characterized by the maneuvers of different major players and often end up with prices that are high above marginal costs.

U.S. Anti-trust enforcement has been in the doldrums for many years. While the current levels of market concentration would have worried federal enforcement officials in previous decades, little antitrust enforcement now takes place. The result for the West Coast is that the market is characterized by relatively few firms.

U.S. law on antitrust is complex and counter-intuitive. It tends to focus on intent rather than opportunity. It would be a rare bank robber who could argue for his innocence on the fact that he did not intend to rob a bank. A firm that exercises market power in a concentrated industry can, and does, get the benefit of the doubt if they can argue that the exercise of market power is inadvertent.

The major cost driver in gasoline is oil. The relationship between gasoline and oil prices – both Brent and Cushing – is statistically significant and can be used to estimate the impact of market power on consumers over the past month. Between February 17 and March Brent crude fell $8.78/barrel and WTI Cushing fell $9.63/barrel. Based on the statistical relationship between retail gasoline price and crude, we would have expected a decrease of prices at the pump of $.20/gallon. Actual prices increased $.52/gallon over this period.



In this case, as happened during a similar price spike in October 2012, a relatively minor market event has created the impetus for a major price change.[2] The price increase in the two weeks following the explosion in Torrance added $437 million to sellers' profits. At the same time, the slide in oil prices reduced refinery costs by $89 million. In total, consumers would have paid $526 million less in a perfectly competitive market in the month since the incident.

The policy implications are clear. The market would be more efficient if recent industry consolidation had been prevented by vigilant anti-trust reviews. Failing an effective anti-trust solution, additional reporting is needed along the West Coast to discourage misinformation being exploited to artificially increase prices above competitive levels.

[2] In the fall of 2012, the retail price of gasoline in California increased more than $0.50 in ten days, and while the industry blamed a fire at Chevron's Richmond refinery, production and stocks of gasoline had been unaffected due to increased production at other refineries in the state.