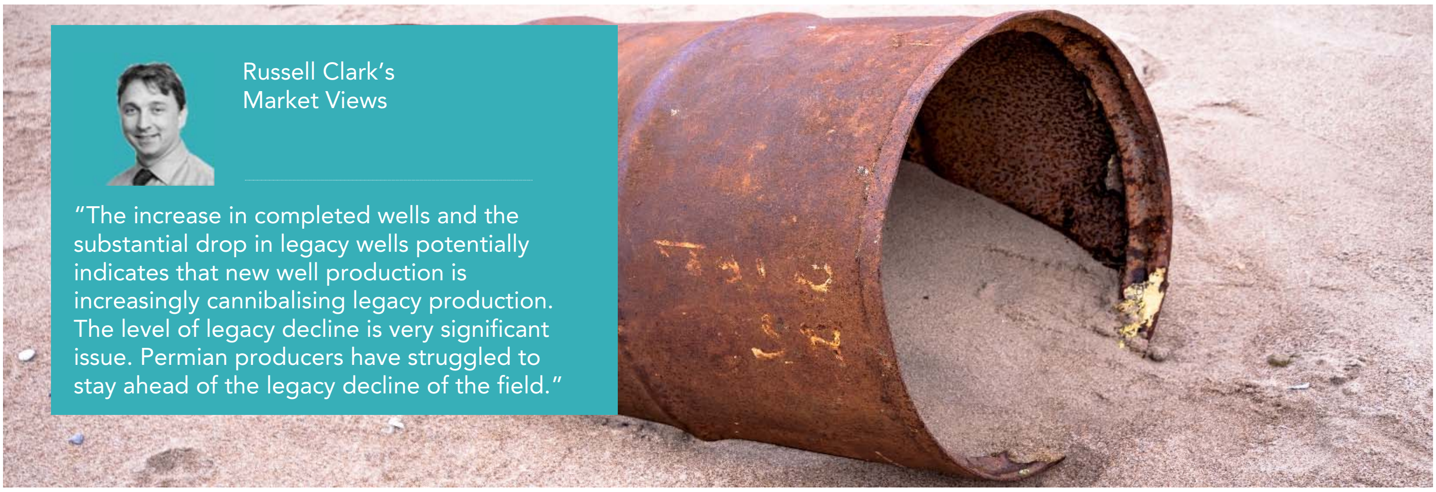
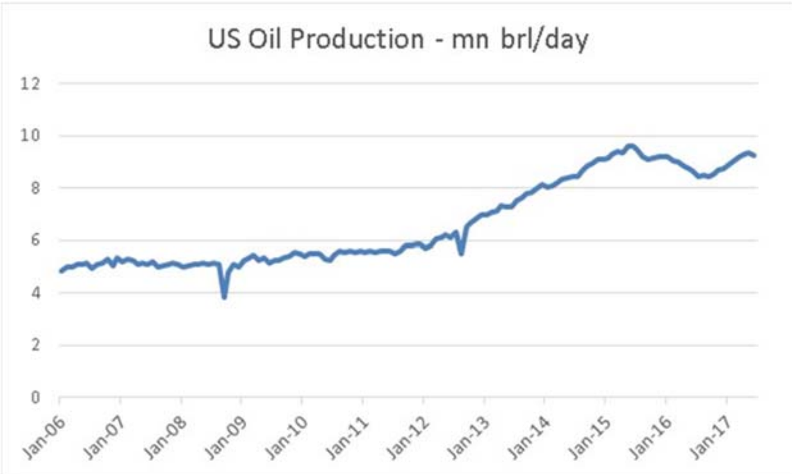
THE END OF THE TEXAS TEA PARTY



Russell Clark's
Market Views

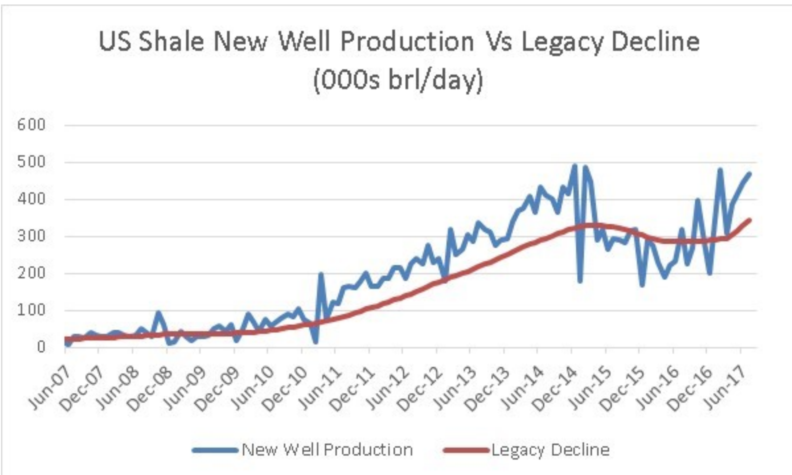
"The increase in completed wells and the substantial drop in legacy wells potentially indicates that new well production is increasingly cannibalising legacy production. The level of legacy decline is very significant issue. Permian producers have struggled to stay ahead of the legacy decline of the field."

Shale oil and gas drilling revolutionised the oil and gas industry and has put the prices of oil and gas globally under significant pressure. With the collapse of oil prices in 2014/15 the US shale industry came under pressure, but with new drilling techniques the US shale oil industry has managed to get production close to new highs.



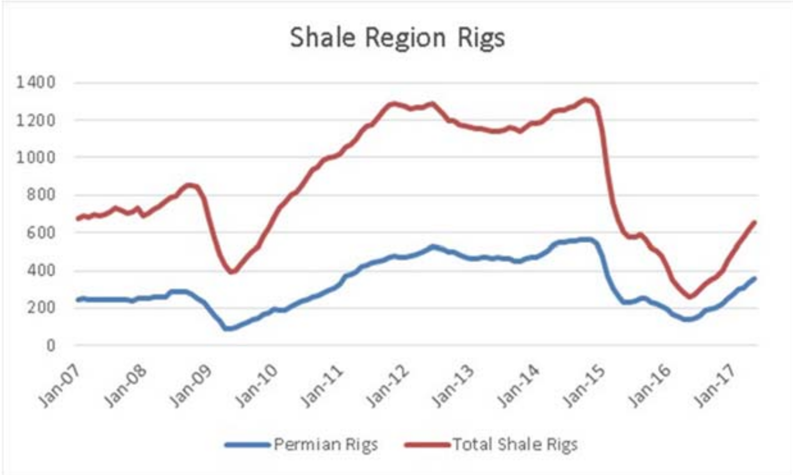
Source: DOE

However, shale oil wells are very different to traditional oil wells. They have very high decline rates, meaning that new production has to be constantly added to offset the fall in production from existing wells. That means for shale oil industry to grow, it must have new production growing faster than legacy decline. The EIA provide details of both new production and legacy decline. As can be seen, the industry needs to produce at least 350,000 new barrels a day to offset the legacy decline.



Source: EIA

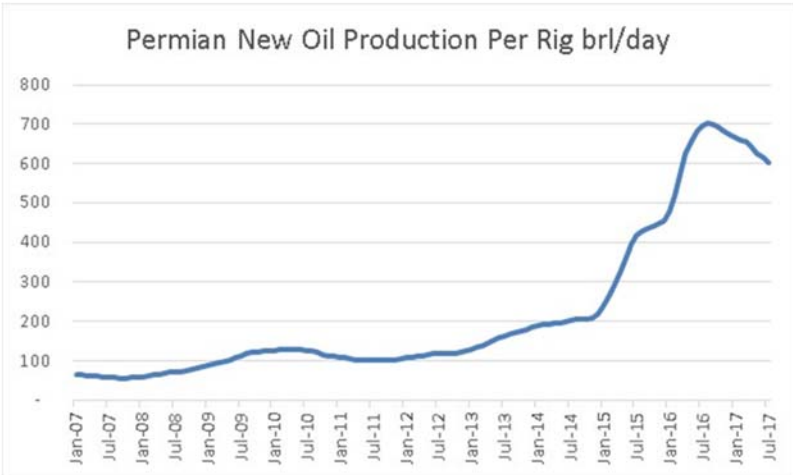
US shale drillers reacted to the slump in oil prices in 2014 and 2015 through two different strategies. The first was to concentrate production to the "core" fields. These are areas that offer the best initial flows. The Permian area has the best areas for drilling and Permian based rigs are now more than 50% of all rigs (Source: EIA).



Source: EIA

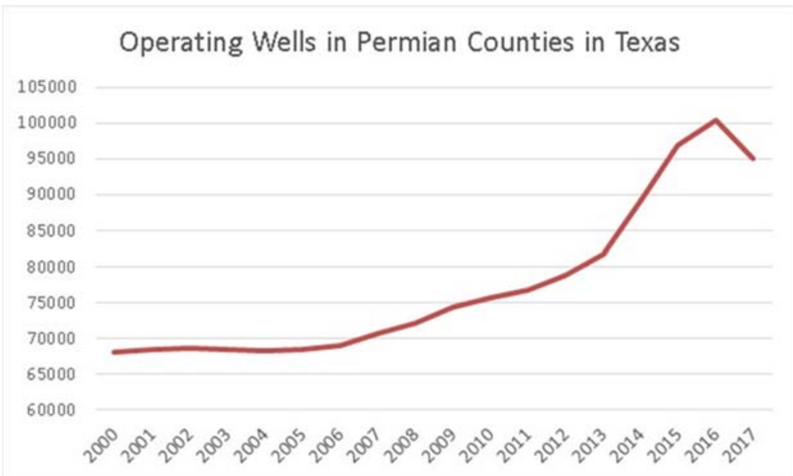
The second strategy was to increase the number of wells drilled per rig. This is a slightly confusing concept, but rigs are good indicator of drilling activity, as you need a rig to drill a well. But a well does not need a rig to be operated. In fact, a well can stay operating for a long time after a rig has disappeared.

There are however signs that productivity gains in the Permian are becoming more difficult to attain. The EIA Well Productivity Report is forecasting a substantial decline in new well productivity for the Permian over the next few months.



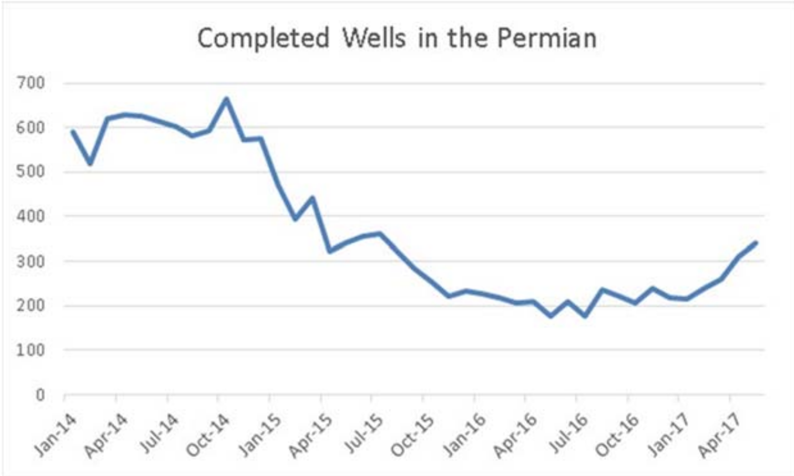
Source: EIA

We also find that when we consult the Texas Railroad Commission data on operating wells, we find a historically unusual drop in the number of operating wells in the Permian counties. This data is updated in September and February of each year.



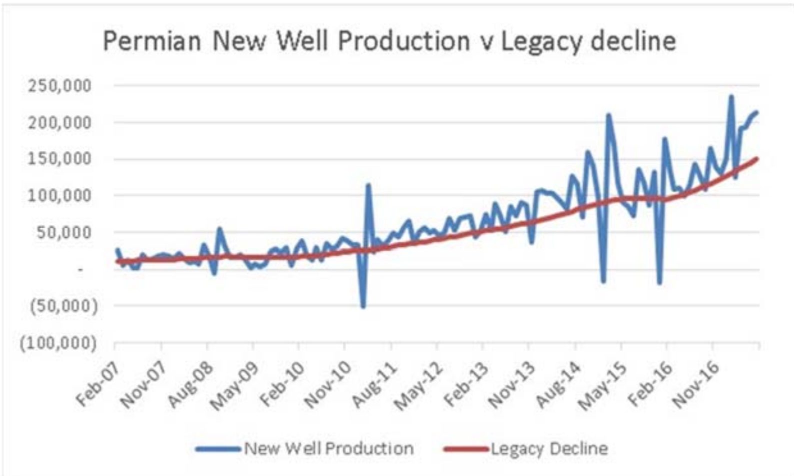
Source: Texas RRC

The unusual drop in operating wells has happened at a time when the number of completed wells has been increasing. This suggests that a large number of legacy wells are no longer producing oil. As can be seen above, since the peak in operating wells in February 2016, operating wells have dropped from 100,000 to 95,000 or by roughly 5,000 wells. The completed wells data from the EIA below suggest that over the same period we have seen 3000 completed wells (the sum of completed wells from March 2016 to February 2017). Therefore, if operating wells fell by 5,000, but new well increase by 3,000, the total decline in legacy wells looks to be over 8,000, or over 8% of legacy wells have ceased operating.



Source: Bloomberg

The increase in completed wells and the substantial drop in legacy wells potentially indicates that new well production is increasingly cannibalising legacy production. The level of legacy decline is very a significant issue. As can be seen below, Permian producers have struggled to stay ahead of the legacy decline of the field. Currently Permian is losing 150,000 barrels a day of oil production to decline. Drillers in the Permian have only managed to produce new oil at a greater level then the current decline rate for a total of 10 months out of 126 months since the EIA began recording this data in 2007. Furthermore, the decline rate looks to be accelerating.



Source: EIA

Shale drillers reacted to low oil prices by limiting oil extraction to only the best areas, while also maximising new well extraction in these areas by increasing the number of wells per rig, and drilling much longer pipes (laterals). I suspect that the drillers are finding that frac-hits (new wells interfering with legacy wells) are causing decline rates to accelerate, hence the reduction in operating wells. The implication is that increasing new production from current levels will be difficult, while legacy decline rates will continue to rise. Therefore, it seems likely to me that US oil production growth will likely peak soon.

INFORMATION

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