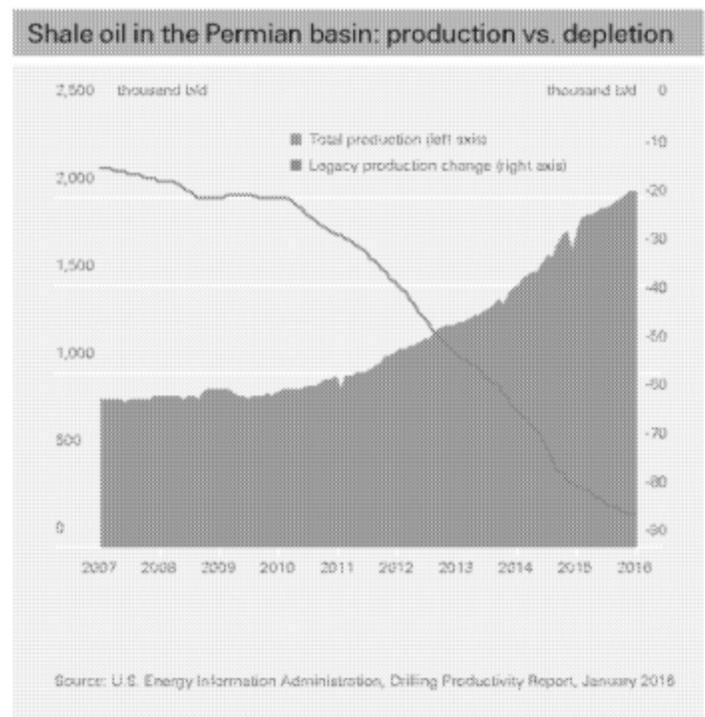
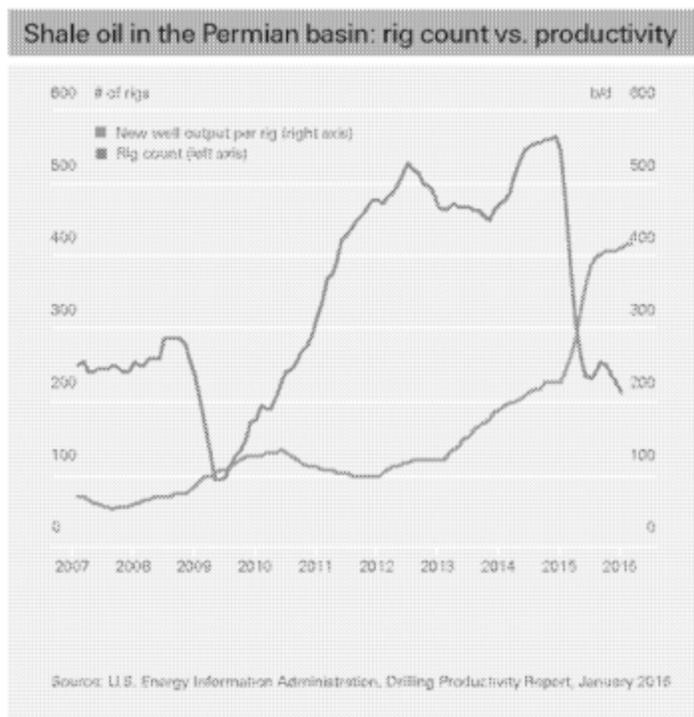


## Unexpectedly resilient U.S. production

Arguably the most surprising factor in this cycle has been the resilience of U.S. production in the face of collapsing oil prices. Many of the larger, traditional oil companies in the United States and elsewhere have shelved big investment projects, such as expensive deep-sea drilling in the Gulf of Mexico. However, such projects take years to realize and it takes equally long for lower investment to result in lower supply.

Instead, the swing in output was expected to come from shale-oil production. Shale rigs are quick to drill and have typically seen production decline by 50% or more within the first year. This means shale production can adjust fairly quickly, simply by not replacing existing wells. Moreover, as with conventional wells, most of the costs involve upfront capital expenditure, rather than operating expenses. Sure enough, shale producers have cut investment to approximately \$60bn in 2015, well below the \$100bn or so spent in 2014. Unexpectedly, however, this proved enough to keep shale production close to steady for the year after peaking in early 2015.

The two graphs below show the dynamics of shale-oil. The Permian basin, spanning western Texas and southeastern New Mexico, is currently the only major U.S. region with growing production. Current estimates suggest that output from legacy wells declines by 84,000b/d. So, to generate 5,000b/d in growth would require additional 89,000b/d of production from new wells. As a result of the astonishing productivity gains, one rig now produces more than 400b/d, in 2012 that number was only 100b/d.



Past performance is not indicative of future returns. No assurance can be given that any forecast, investment objectives and / or expected returns will be achieved. Allocations are subject to change without notice. Forecasts are based on assumptions, estimates, opinions and hypothetical models that may prove to be incorrect. Source: Deutsche Asset & Wealth Management Investment GmbH, as of 02/2016