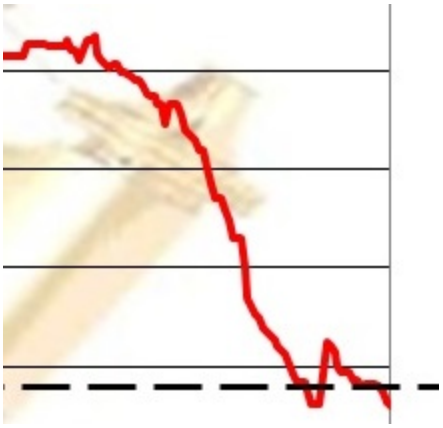
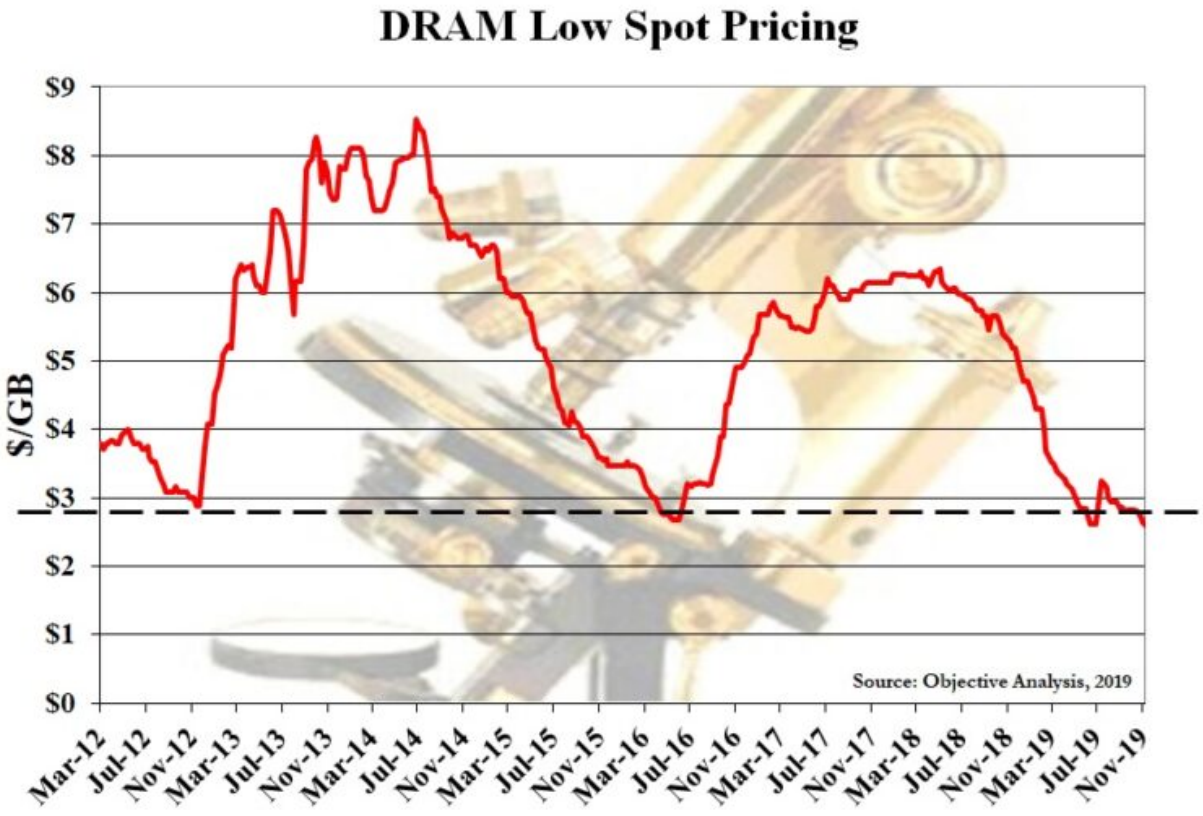
The Memory Guy Blog

Jim Handy, Objective Analysis, on Semiconductor Memories

DRAM Prices Hit Historic Low

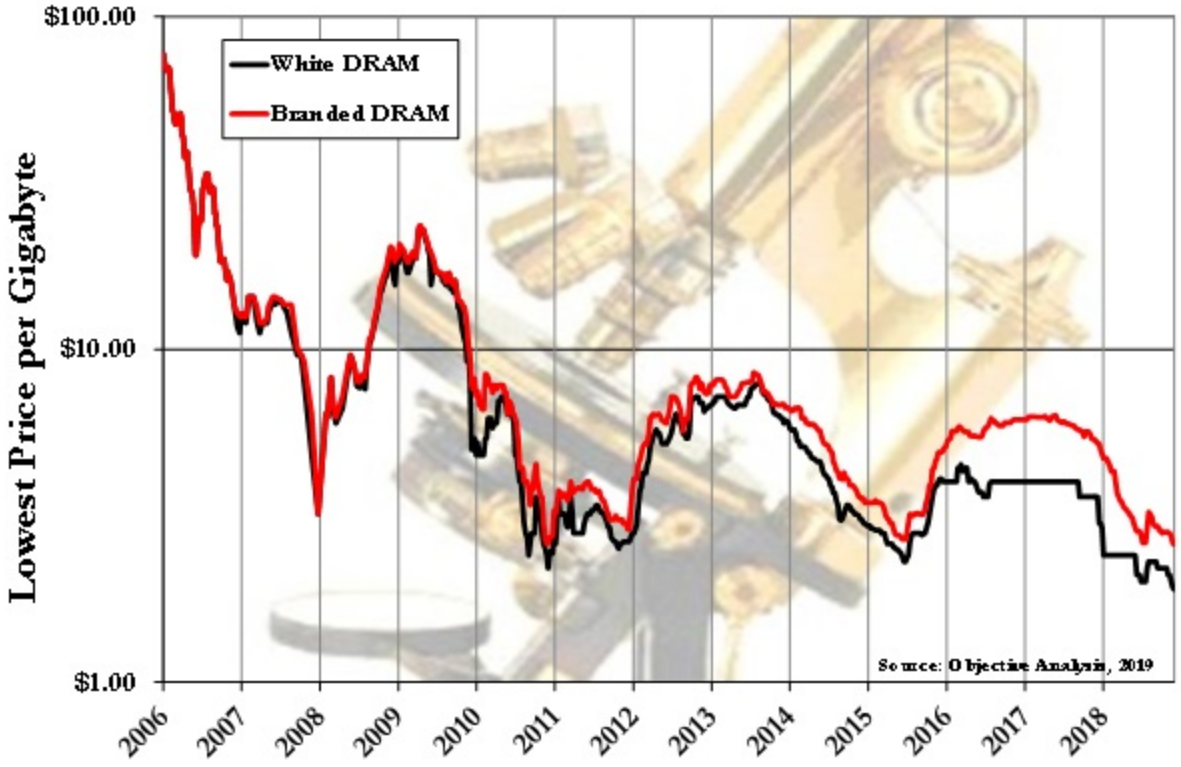


Everyone knows that DRAM prices have been in a collapse since early this year, but last week DRAM prices hit a historic low point on the spot market. Based on data the Memory Guy collected from spot-price source InSpectrum, the lowest spot price per gigabyte for branded DRAM reached $2.59 last week. This is lower than the prior low of $2.62 last July, which equaled an earlier $2.62 record set in June, 2016. See the figure below:



The black dashed line represents 2012's lowest price of $2.88.

Something really odd, though, is that DRAM prices have not been behaving over the past eight years the same way that they have for most of their history. Let's zoom back and take a 13-year view of the same spot market pricing:



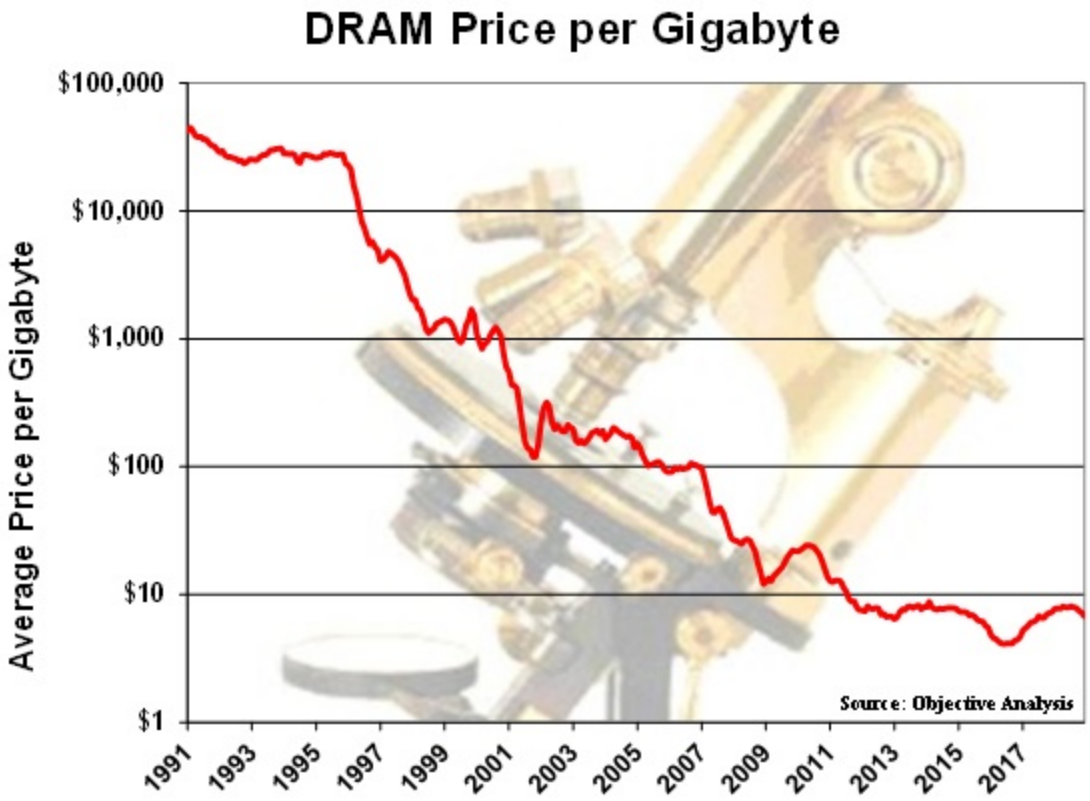
Unbranded "White" DRAM is included in the black curve, but those prices tend to be less consistent (and always lower) than the branded products' prices. They probably include products that don't perform to full specifications. This is why I stick with the red line which represents prices of products marked with their manufacturer's branding.

The curves are plotted using a semilogarithmic format to keep the older data from dominating the chart. An added bonus is that constant growth appears as a straight line in this format, so a relatively straight downward-sloping line can be drawn to connect the low points on the left half of the chart, and this straight line follows a Moore's Law annual cost decrease of about 32%.

Until 2011 or so DRAM prices followed this Moore's Law slope, departing from it when prices flattened or even increased during shortages. Since 2011, though, prices have been rising and

falling along a horizontal line. This is very uncharacteristic.

To understand how uncharacteristic that is, let's zoom out even farther and look at data derived from over 28 years of WSTS data to see how DRAM prices have behaved over the longer term.



Clearly DRAM prices generally drop, with occasional periods of flat pricing that usually lasts up to 2 years. This makes the behavior for the past eight years all the more amazing.

During an oversupply prices nealy always drop to cost, and Objective Analysis fully expects to see this same behavior repeated with the current oversupply since this oversupply is nowhere near its end. Spot prices always react earlier and more severely than do contract prices, so spot prices may already be at cost, and are very likely to drop below cost over the next few months.

Let's look at an example company. SK hynix' latest results indicate that the company's DRAM cost is about $2.60/GB. The company's third-quarter contract price was about $3.90. In comparison, these same spot prices averaged $2.90 that quarter. This indicates that DRAM prices are very likely to fall to $2.60 over the next few months.

So, although DRAM spot prices recently reached a historic low, expect for them to fall further as the ongoing overcapacity plays out.

Those who would like to understand why and how the current oversupply is likely to end can either contact us to arrange a business relationship or read our recent report on China's memory thrust, which spells out the rationale for the next shortage. This is the kind of data that Objective Analysis regularly provides to our clients, and its data that allows these companies to thrive, even in tough times like today.

 Jim Handy / November 20, 2019 / Business Strategies, DRAM

9 thoughts on "DRAM Prices Hit Historic Low"

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Nicholas Cummings

August 9, 2020 at 11:42 pm

Hi Jim,
I'm new to the DRAM memory space and have been wondering whether the industry consolidation over the last 20 years could lead to DRAM memory operating profits not reverting all the way back to cost in each down cycle like it has historically done. There is some evidence to suggest recent results from Micron and SK Hynix didn't collapse to losses or even breakeven in the 2019 pricing cycle rather they stayed profitable through its entirety. I would love to know your thoughts.

Jim Handy ▲

August 10, 2020 at 11:52 am

Nick,

A lot of investors talk about an "Oligopoly" that should lead to "Normalization" of the industry. I have never met anyone who can explain the mechanics behind this.

The oligopolies that seem to work are those that practice collusion. In semiconductors in the US and the EU collusion is illegal. It has been tried and has been punished, so it's not practiced.

A Stanford University professor once told me that in markets with very few participants there is something that he called “Virtual Collusion” in which the players all understand each other so deeply that they can anticipate each other’s moves and keep prices up through this understanding, but the root cause for the price collapses remains.

What is that root cause? It’s the high capital intensity of the business, and the fact that memory chips are commodities. The best way to manage costs for such a business is to run all factories at their absolute maximum output. This motivates suppliers to use price to win customers for all of their factory’s output. If there’s an oversupply then competitors take business from each other, back & forth, by lowering prices until they hit cost.

This should always happen as long as there are two or more suppliers.

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