

A glowing blue microchip is centered on a circuit board. The chip has a grid of small squares on its surface and is surrounded by intricate circuitry. The entire scene is bathed in a blue light, giving it a futuristic and technological appearance.

TPC Semiconductor Market Survey

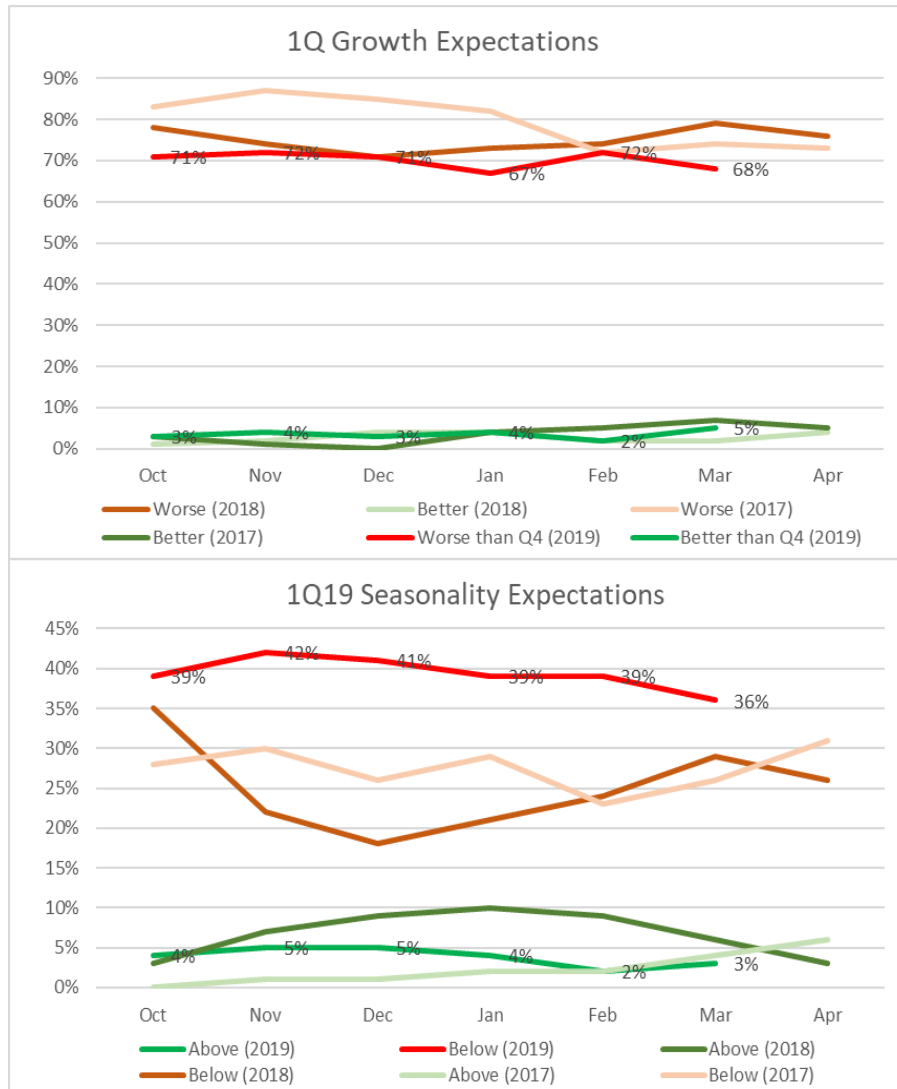
March 12, 2019

TPC March 2019 Survey Summary

Survey Date: March 9-12 Respondents: ~12,200 Location: Worldwide (~80% Asia) Who: Active Electronics Industry Professionals Response Composition (multiple choices): Indust 43%, Auto 19%, Comm 14%, Computing 24%, Mobile 31%, Data Ctr 13%, Other 7%

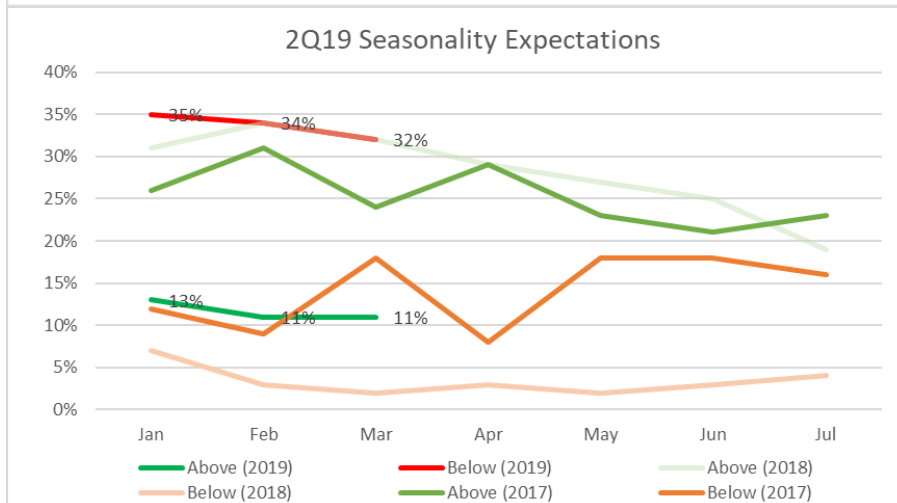
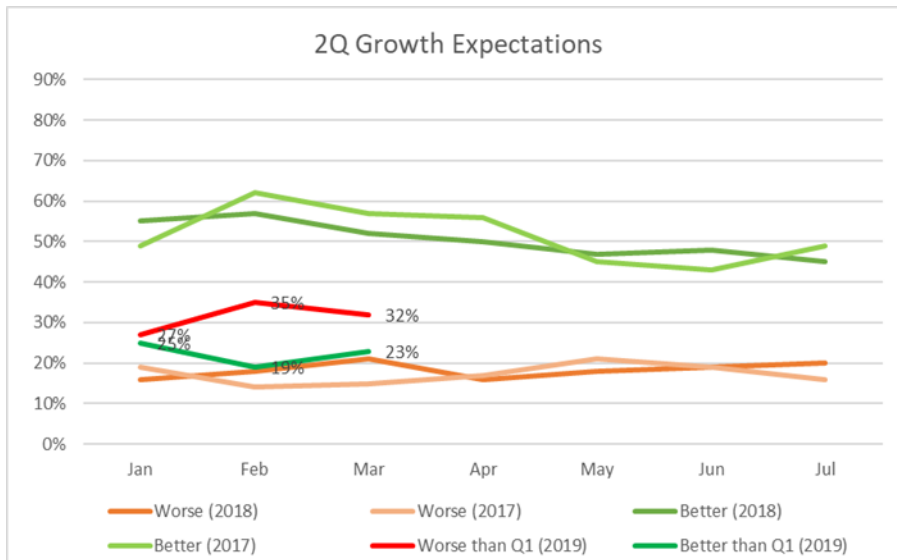
- Our March 2019 Semi industry survey of over 18k electronic industry professionals showed some improvement in bookings, demand, and cancellation trends. However, inventories continued to be high and increasing in some product areas.
- Based on our survey results and conversations with various supply chains; we believe the industry has yet to see a true bottom as demand continues to be weak and inventories continue to be viewed as too high. Additionally, there continues to be concern over the macro environment especially in China. We would want at least another month of positive improvement in our C2Q data along with an initial positive C3Q outlook before we would believe we are at a bottom in this cycle.
- We also still question how quickly the recovery in the back half of the year will be, and will look to our initial C3Q survey results to help better understand this.
- The q/q demand outlook for both C1Q19 & C2Q19 upticked slightly.
 - For C1Q, 68% expect weaker q/q growth vs. 72% previously. Only 5% expect better q/q growth.
 - For C2Q, 32% expect weaker q/q growth vs. 35% previously. 23% now expect better q/q growth vs. 19% last month.
 - 32% see C2Q as sub seasonal vs. 11% seeing it above seasonal. This remains significantly weaker than the previous 2 years data.
- C2Q19's booking expectations also improved slightly with 46% expecting bookings to increase q/q vs. 44% in last month's survey. Only 18% expect weaker bookings vs. C1Q. To us, this points to a possible upturn in demand outlook for C3Q19.
- One negative indicator that continues to stand out is cancellation expectations which continue to be abnormally high, with 41% seeing an increase in cancellations over the last 30 days (vs. 45% last month). This indicates customers are still trying to drive their supply chain inventories lower due to the belief of weaker C2Q demand.
- Inventories also continue to increase for C1Q with 42% saying C1Q inventories are increasing while only 9% see inventories decreasing.
- Slide 9, which shows a more granular view of inventory by key components, shows inventory and availability continuing to improve and inventories growing on most products. **We are seeing all previously allocated products now above normal inventory levels.**
- The outlook for weaker pricing in C1Q also continues to get worse with 42% expecting pricing to decline by >2% q/q vs. 39% in last month's survey. C2Q did improve slightly with 29% expecting pricing to decline >2% q/q.

C1Q19 Growth & Seasonality Outlook



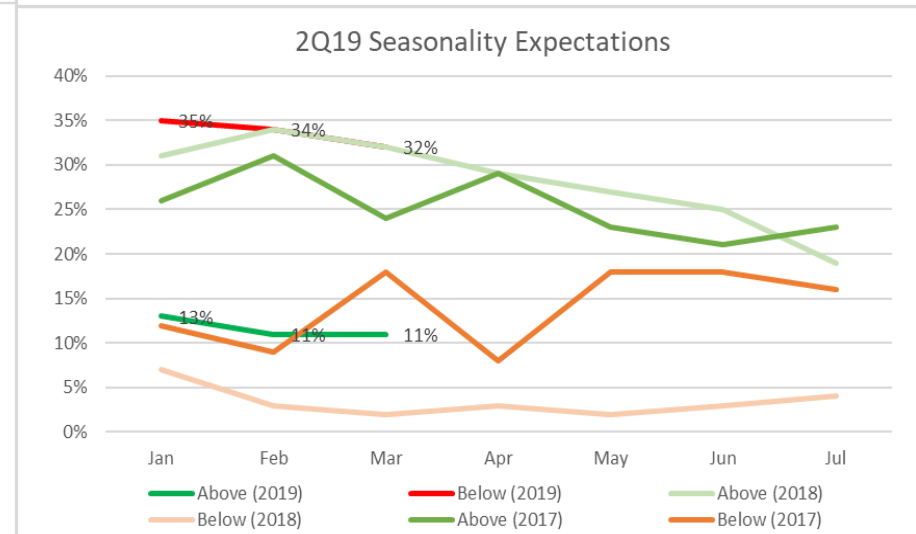
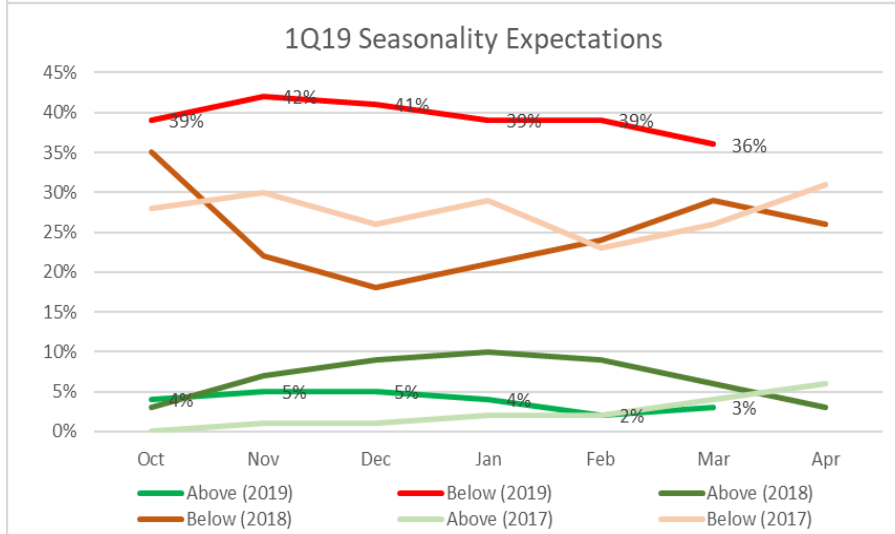
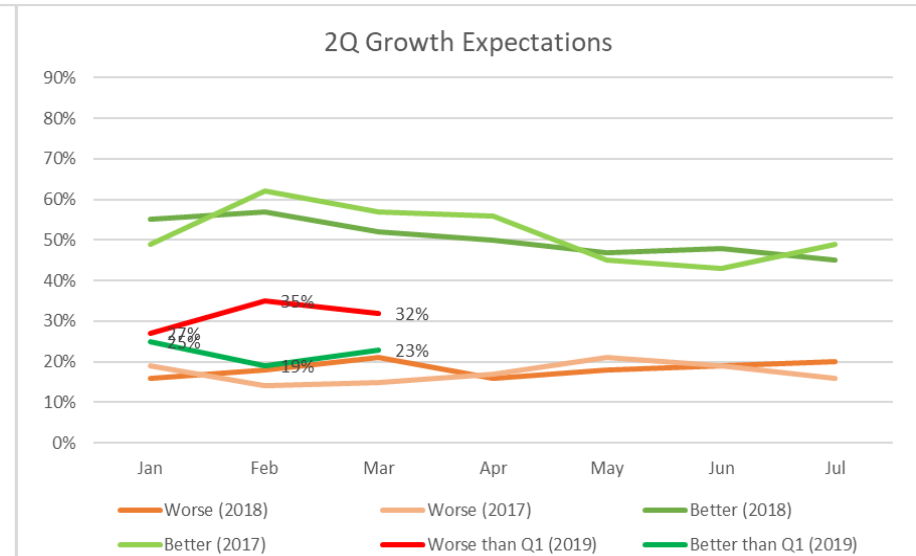
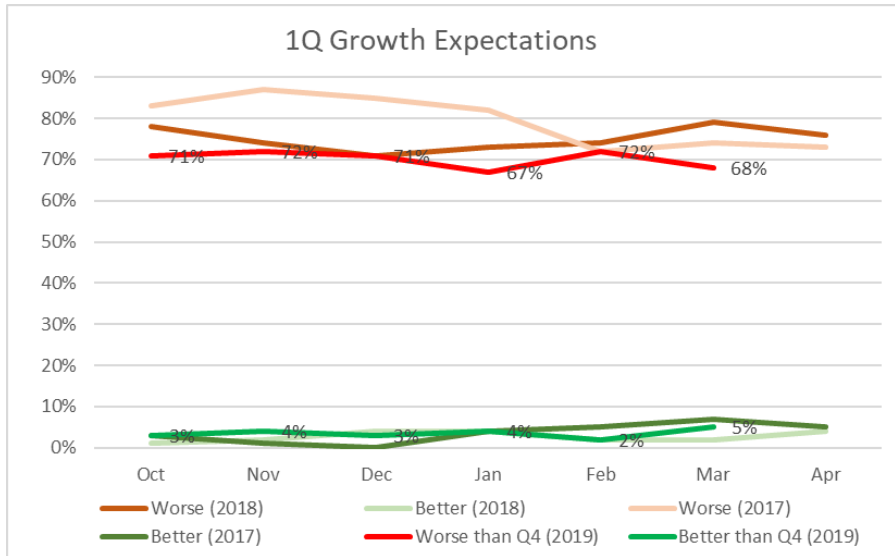
- Most respondents see C1Q19 weaker than C4Q18, but with seasonality much worse.
- While C1Q demand growth is roughly comparable to the previous 2 years; seasonality outlook for C1Q is ~20% worse than previous 2 years.

C2Q19 Growth & Seasonality Outlook



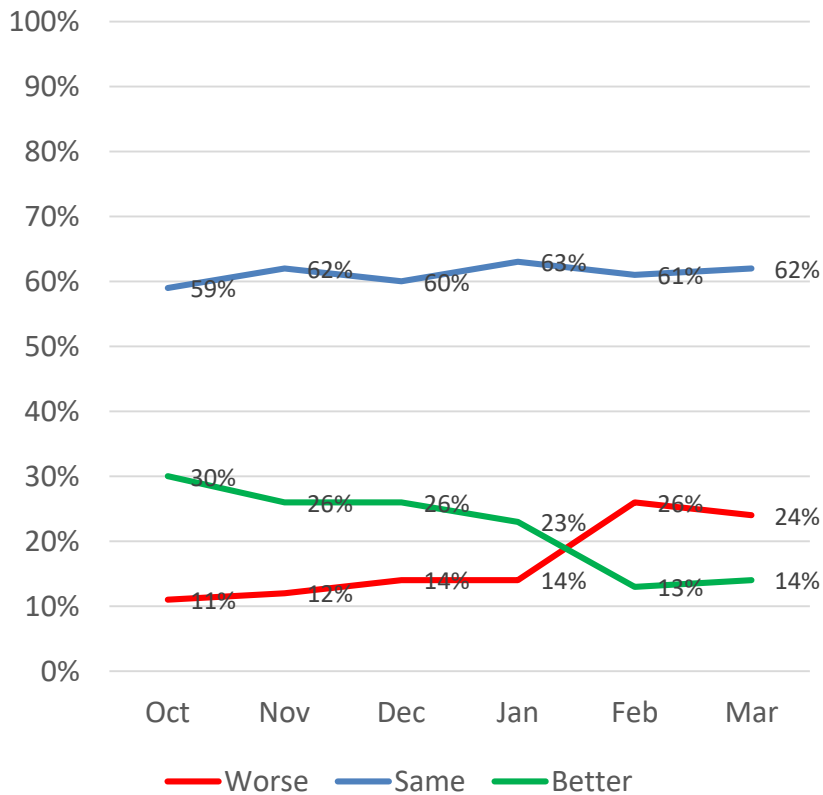
- Both C2Q19's demand growth outlook and seasonality outlook is significantly weaker than the previous 2 years.
- ~2x weaker demand growth vs. C2Q17/18
- ~3x weaker seasonality outlook vs. C2Q17/18.

Growth & Seasonality Outlook

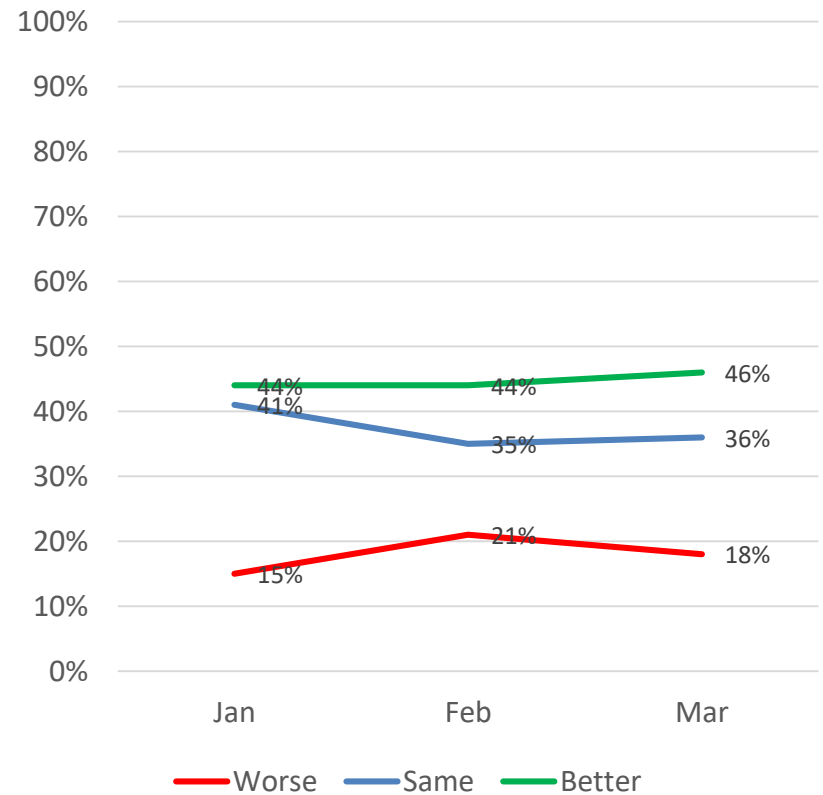


Q/Q Bookings Growth

C1Q19 Bookings vs. C4Q18

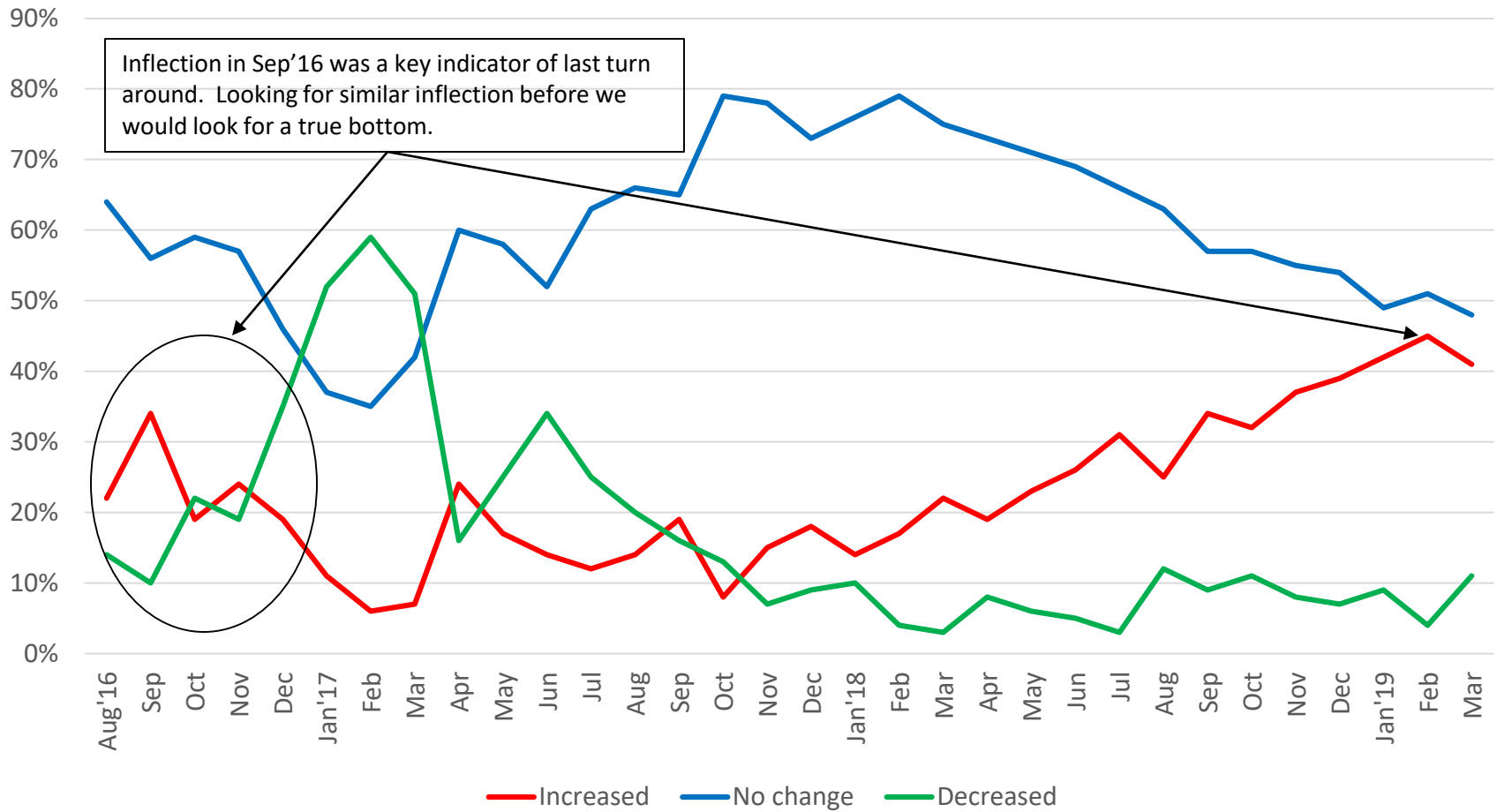


C2Q19 Bookings vs. C1Q19



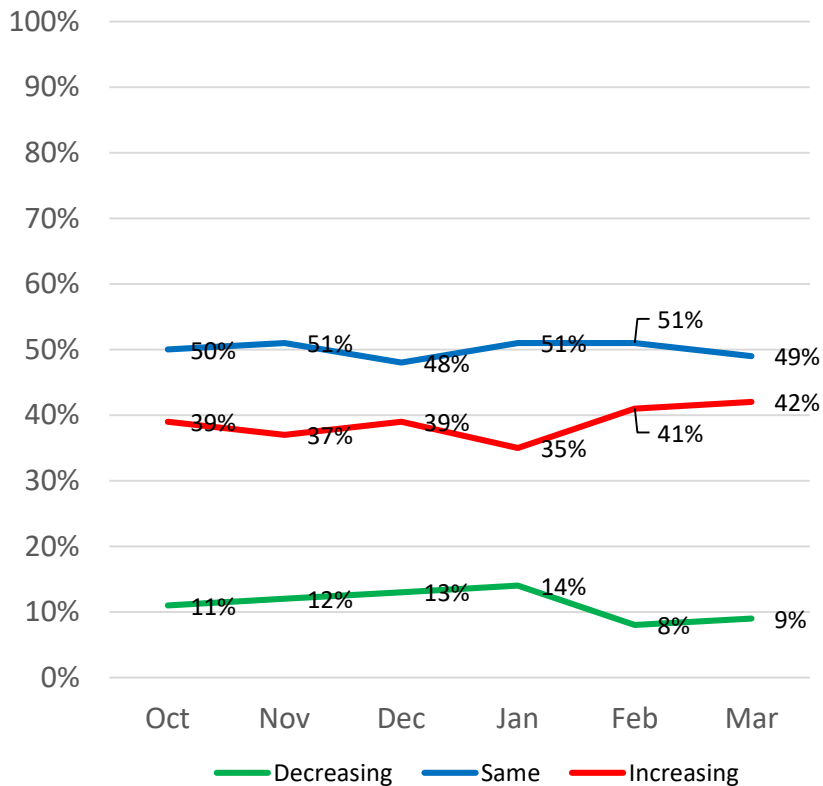
Backlog Order Cancellations vs. 30 Days Ago

Cancellations continue to be abnormally high

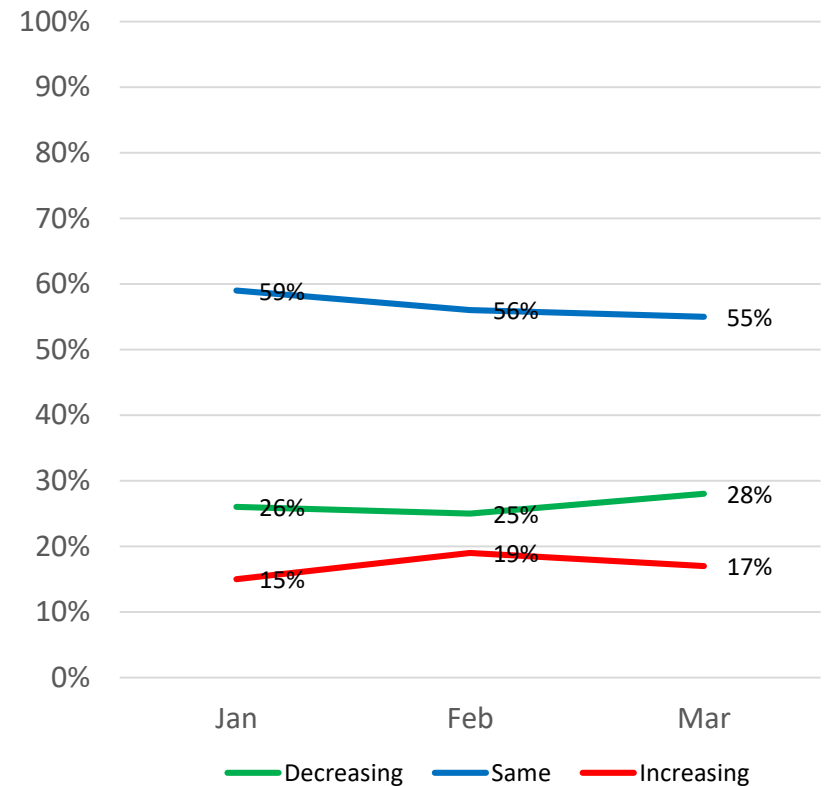


Q/Q Inventory Growth

C1Q19 Inventories vs. C4Q18

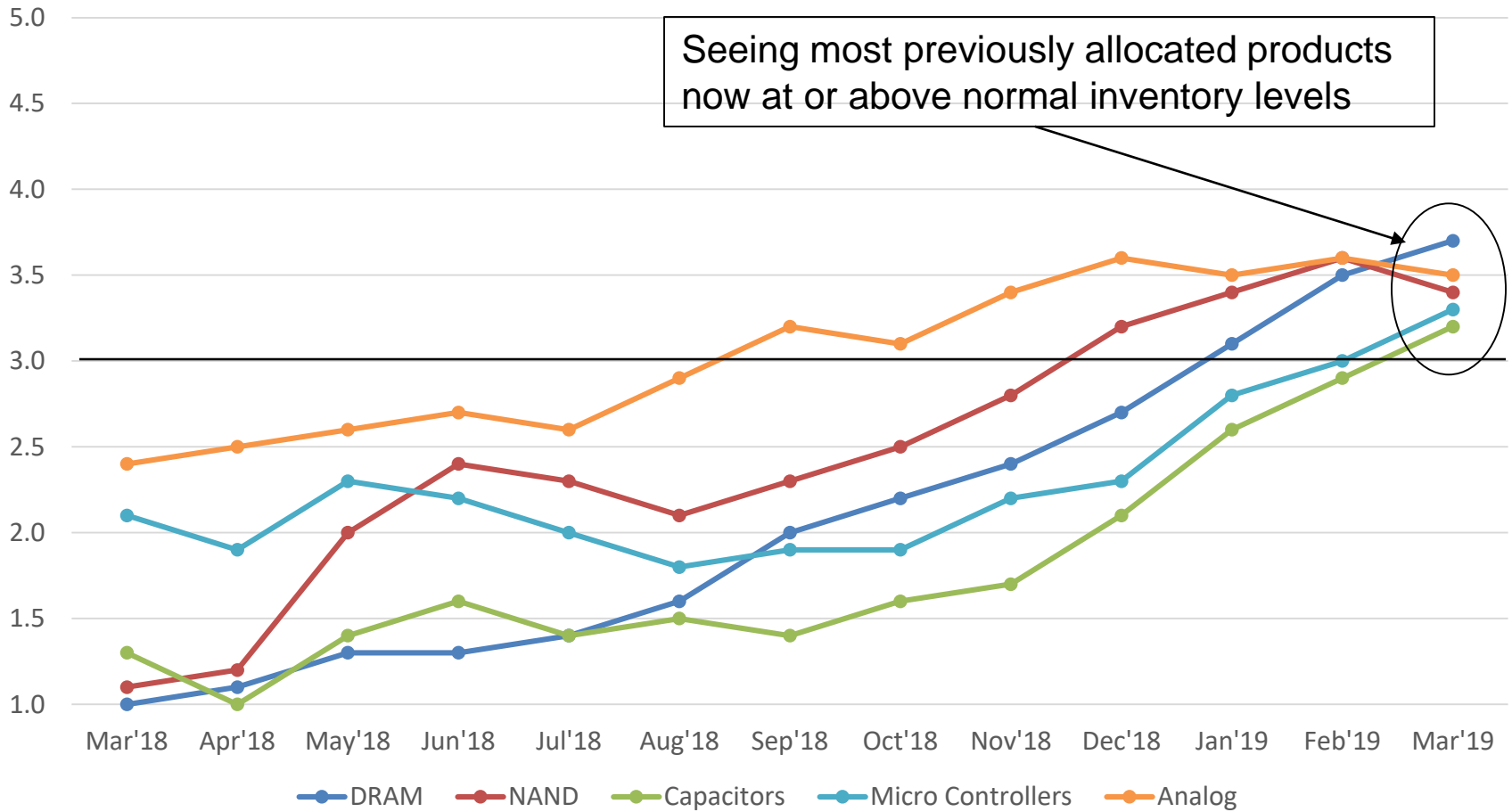


C2Q19 Inventories vs. C1Q19



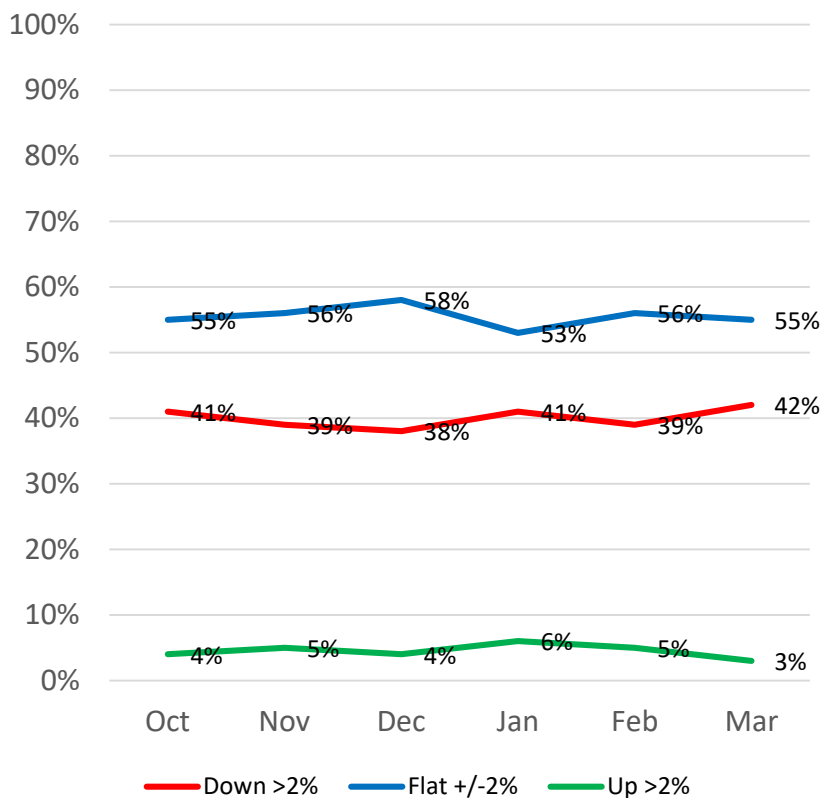
Inventory Status

(Using a scale of 1 to 5 with 1 being extremely low inventory, 3 being the normal amount, and 5 being extremely high; how do you view inventory levels for the following products?)

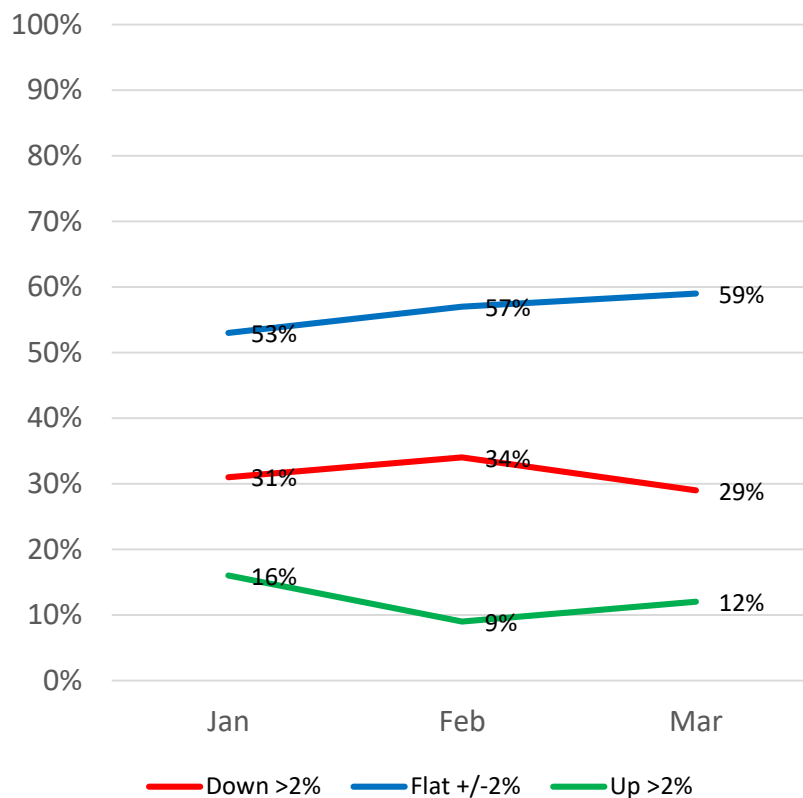


Q/Q Pricing Trends

C1Q19 Pricing vs. C4Q18



C2Q19 Pricing vs. C1Q19



Vertical Outlook

The outlook for Comm and Industrial improves while Auto and Consumer weaken

