



TPC/ECIA Semiconductor Market Survey

October 2019

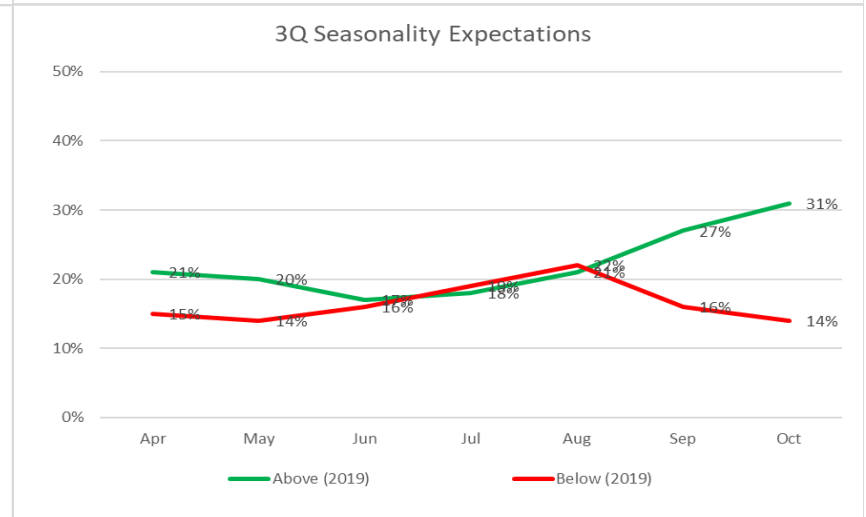
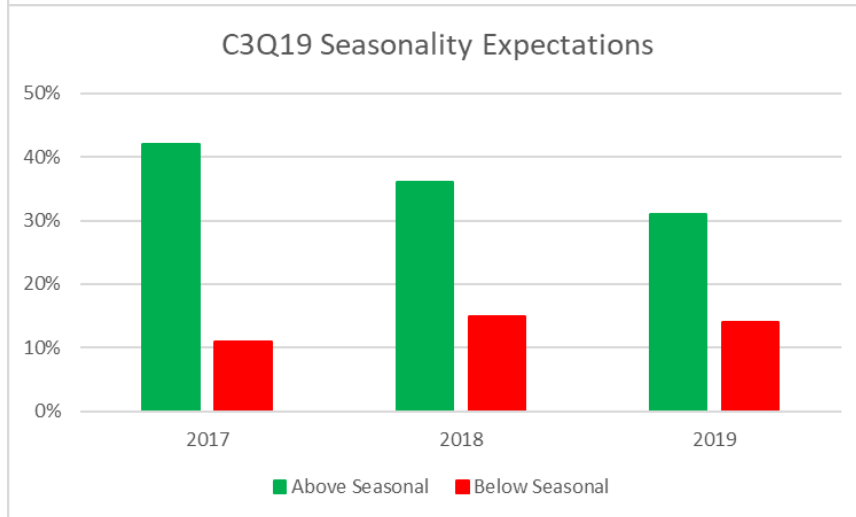
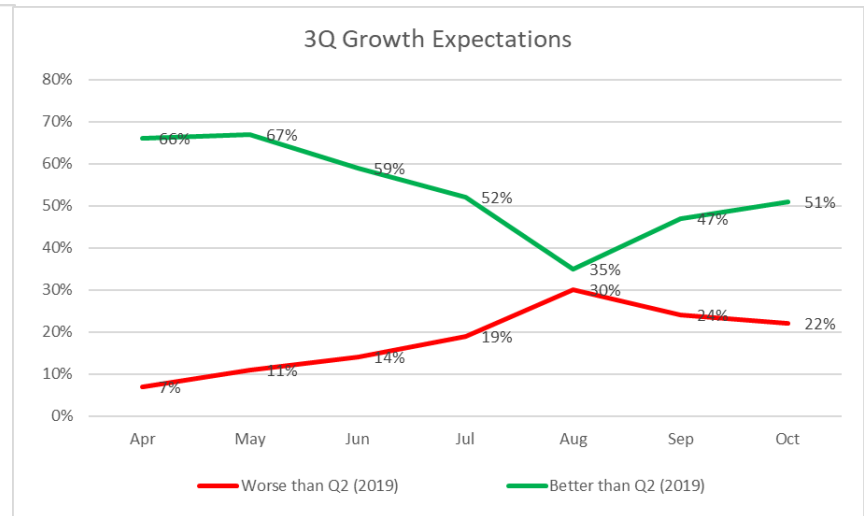
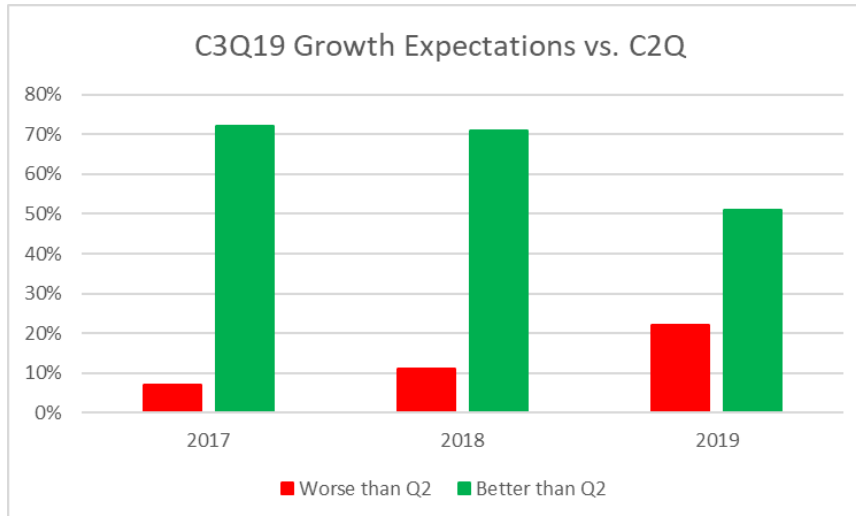
TPC/ECIA October 2019 Survey Summary

Survey Date: October 11-14 Respondents: ~10,800 Location: Worldwide (~80% Asia) Who: Active Electronics Industry Professionals Response Composition (multiple choices): Industrial 39%, Auto 20%, Comm 18%, Computing 23%, Mobile 32%, Data Ctr 19%, Other 12%

- Our October 2019 Semi industry survey of over 25k electronic industry professionals showed an uptick in the demand outlook for C3Q19 while C4Q19's demand down ticked slightly.
- Our C4Q19 survey data shows generally in line q/q demand growth expectations compared to the previous 2 years; however, bookings expectations are slightly improved vs. the previous 2 years.
- Our initial survey of C1Q20 shows roughly the same demand q/q growth outlook as last year, but better from a seasonality point of view (more in line with 2017 seasonal growth).
- **The above leads us to believe that we are at the bottom of the cycle and are showing signs of recovery heading into CY20.**
- Inventories and cancellation trends in C4Q appear to be slightly improving vs. our last survey.
- The q/q demand outlook for C3Q19 improved while C4Q19's outlook weakened. CQ3 is viewed as sub seasonal while C4Q's outlook improved to slightly better than last year.
 - For C3Q, 22% expect weaker q/q growth vs 24% previously while 51% see better growth.
 - 14% see C3Q as sub seasonal vs. 16% seeing it above seasonal. This remains weaker than the previous 2 years data.
 - Our C4Q data shows 61% expecting down q/q growth vs. 58% previously, but only 13% see it as better than seasonal while 9% see it below seasonal.
- Cancellation expectations (slide 7) which is an indicator that has been negative over the past couple of months is showing some improvement vs. our previous survey.
- Inventories (slide 8) for C3Q and C4Q appear to be moving sideways given the responses to increasing and decreasing are moving in the same direction with roughly the same magnitude.
- Slide 9, which shows a more granular view of inventory by key components, shows inventory and availability continuing to be higher than average except for NAND which continues to show lower than normal availability. This is likely due to production cuts coupled with increased demand from the Hyperscale companies.
- Pricing continues to erode into C3Q evidenced by our data on slide 10 where almost 40% of the respondents see C3Q pricing decreasing by >2% q/q and getting worse in C4Q.

C3Q19 Growth & Seasonality Outlook

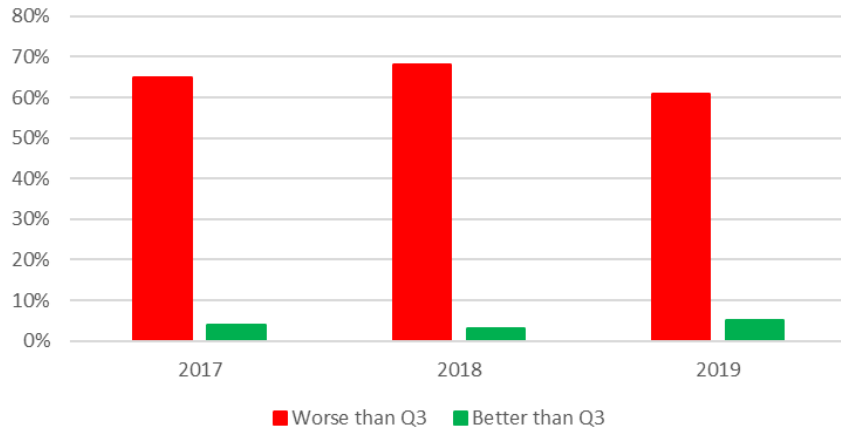
Both C3Q19's demand growth outlook and seasonality outlook is weaker than the previous 2 years



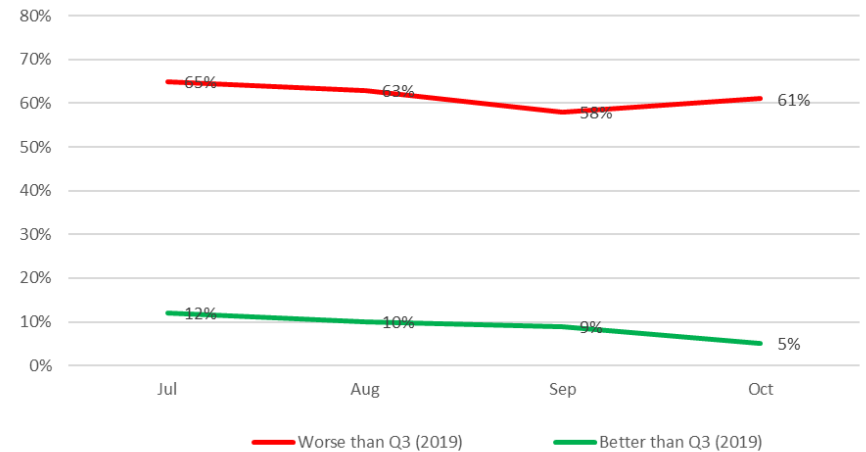
C4Q19 Growth & Seasonality Outlook

Both C4Q19's demand growth outlook and seasonality outlook is weaker than the previous 2 years

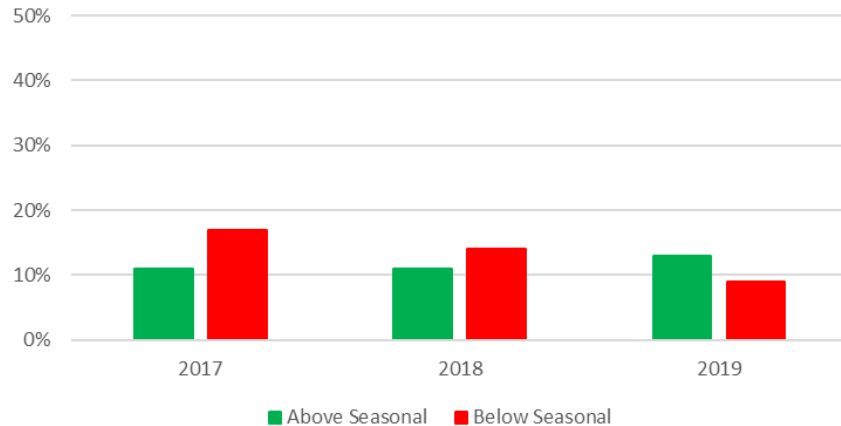
C4Q19 Growth Expectations vs. C3Q



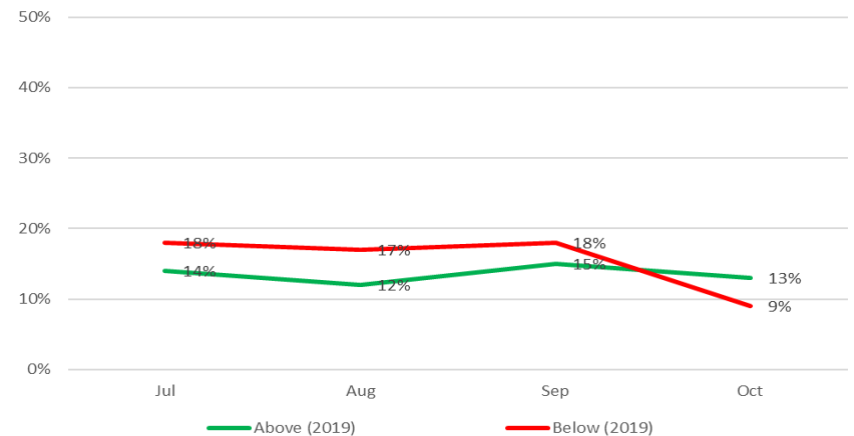
4Q Growth Expectations



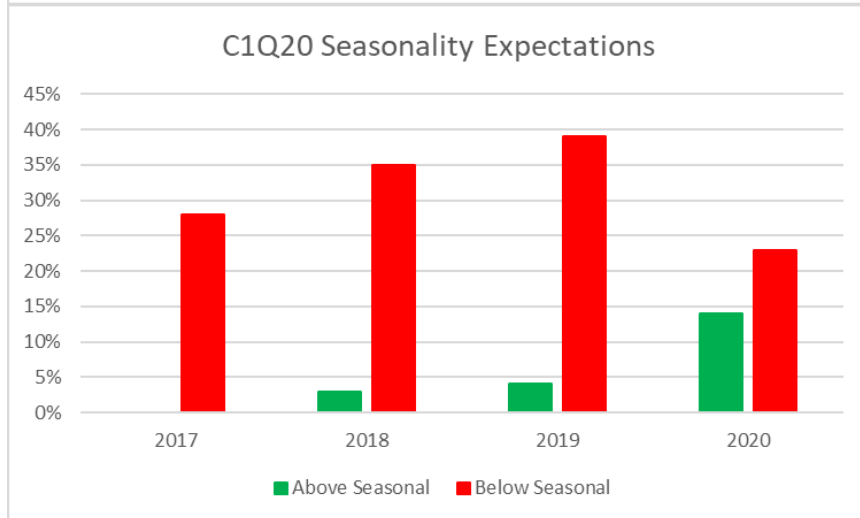
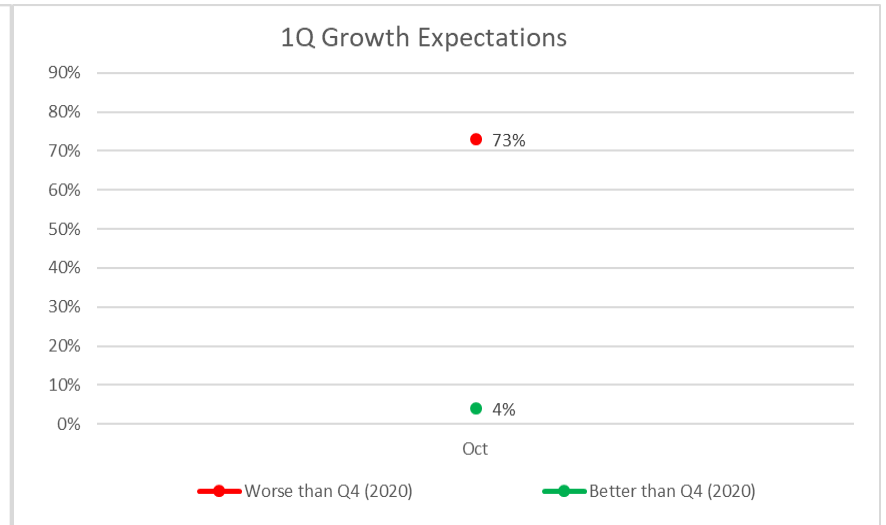
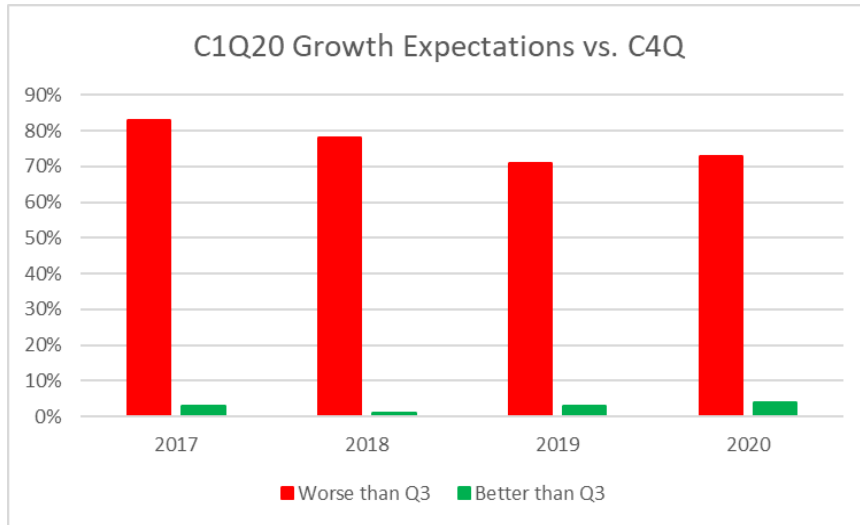
C4Q19 Seasonality Expectations



4Q Seasonality Expectations

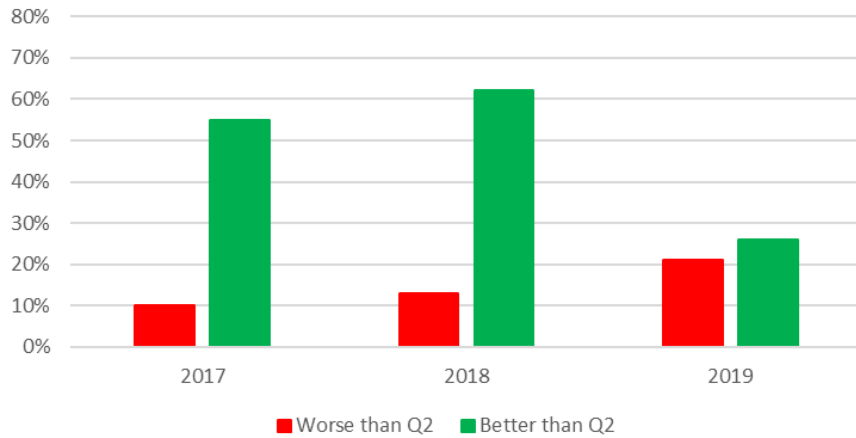


C1Q20 Growth & Seasonality Outlook

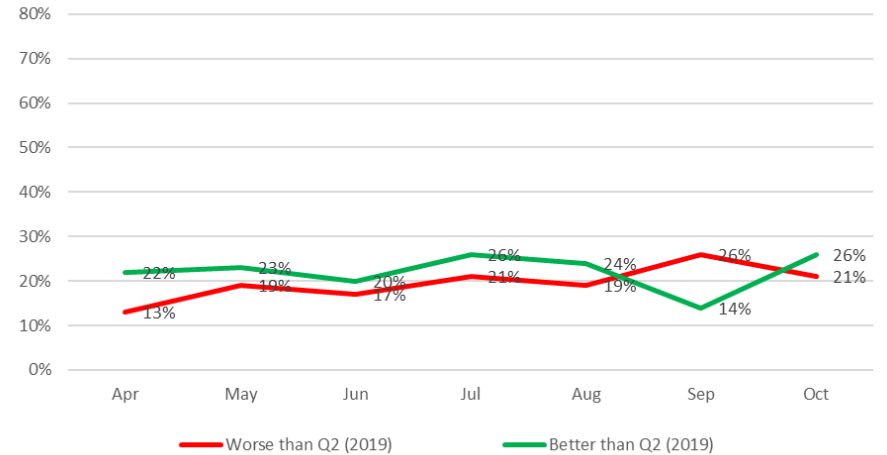


Q/Q Bookings Growth Expectations

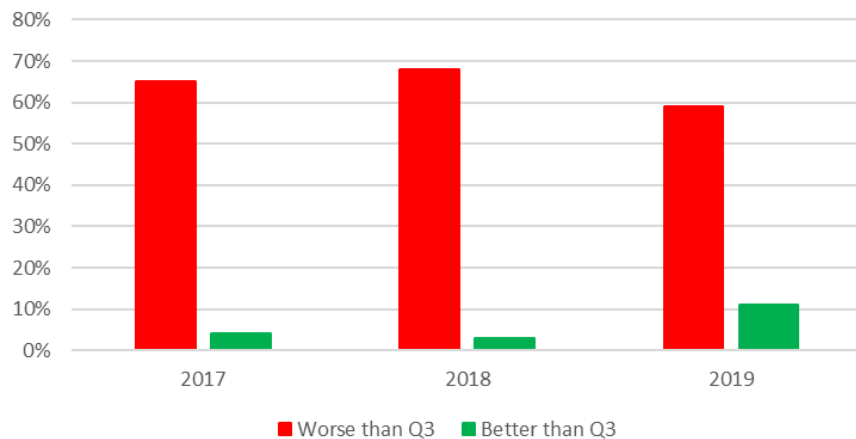
C3Q19 Bookings Expectations



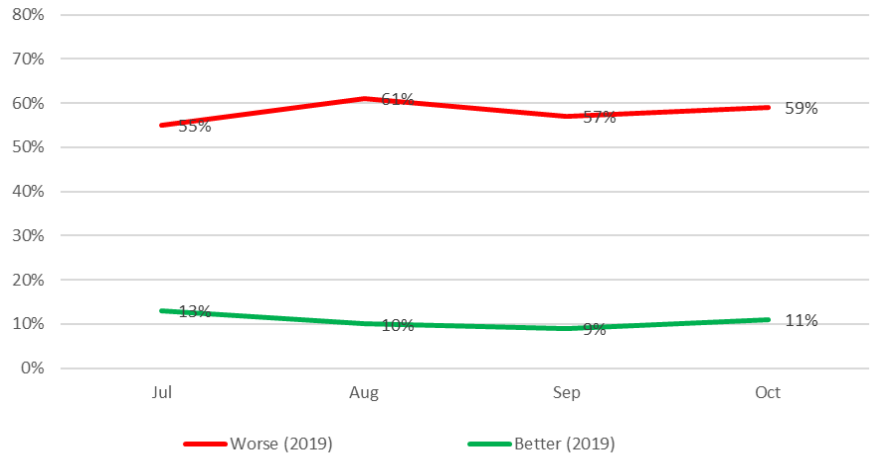
3Q Bookings Expectations



C4Q19 Bookings Expectations

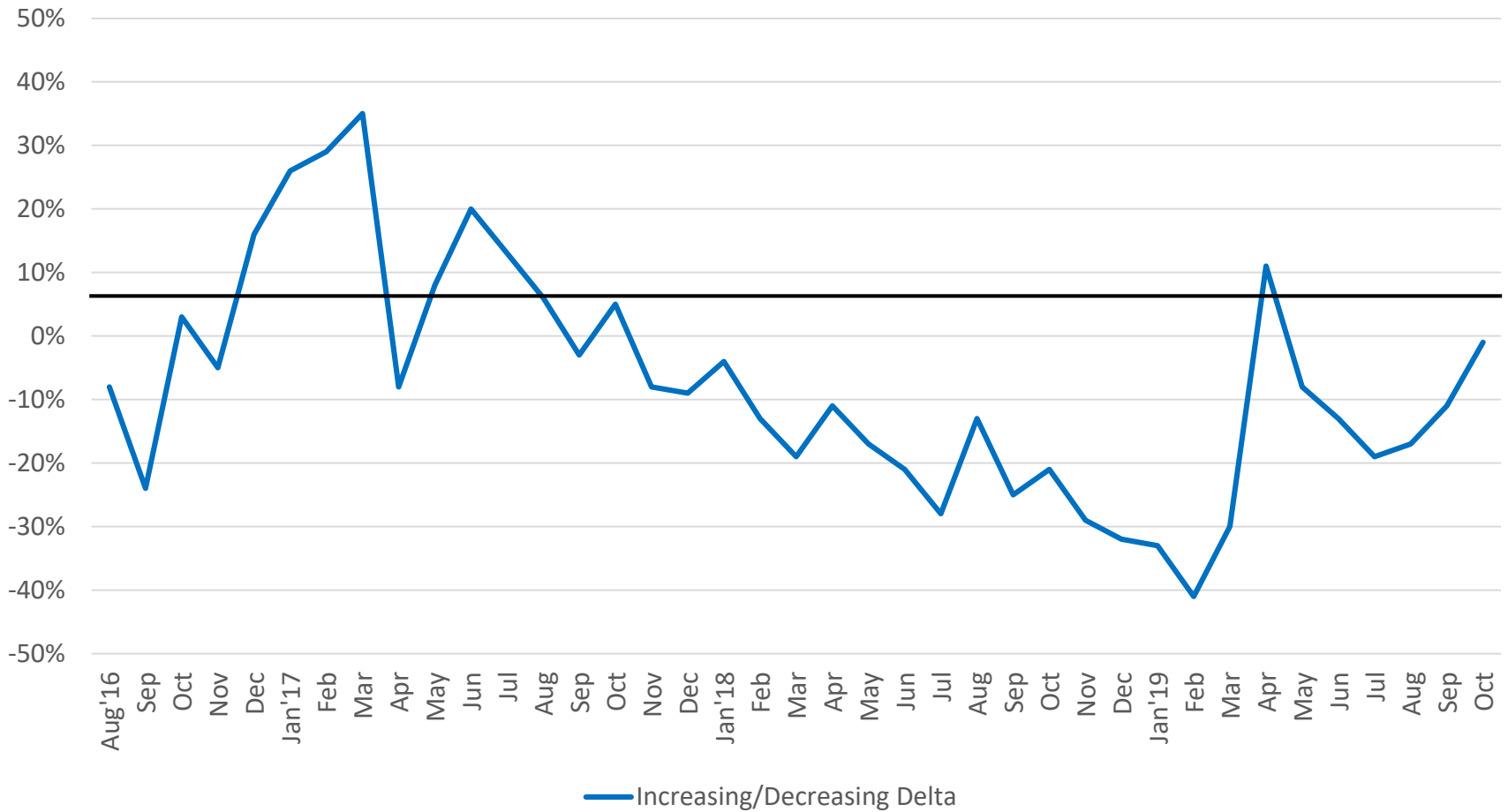


4Q Bookings Expectations



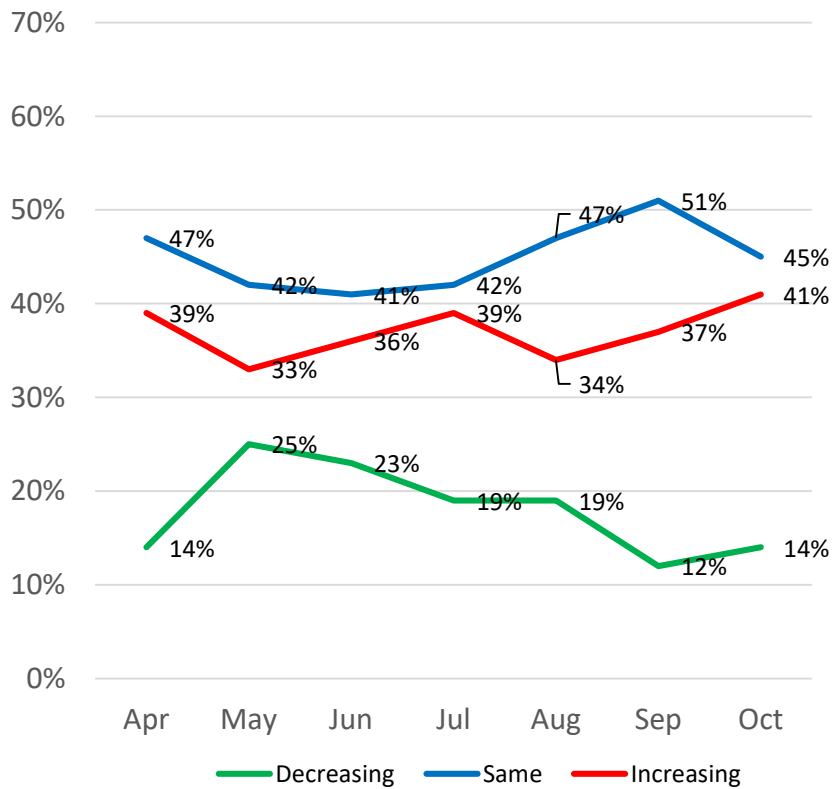
Backlog Order Cancellations vs. 30 Days Ago

(Delta between Increasing and Decreasing Cancellations)

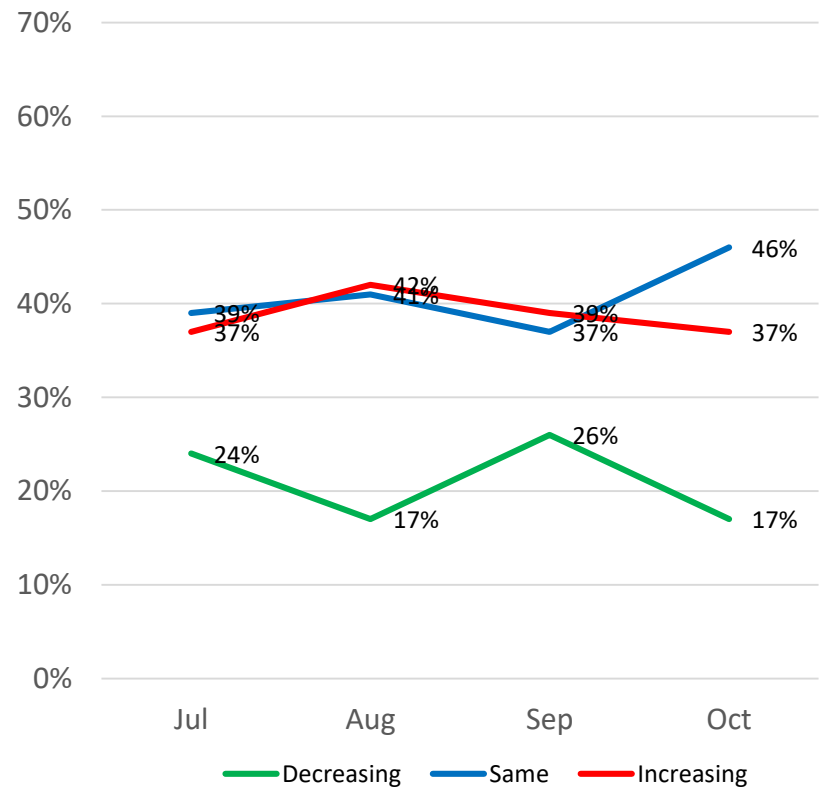


Q/Q Inventory Growth

C3Q19 Inventories vs. C2Q19

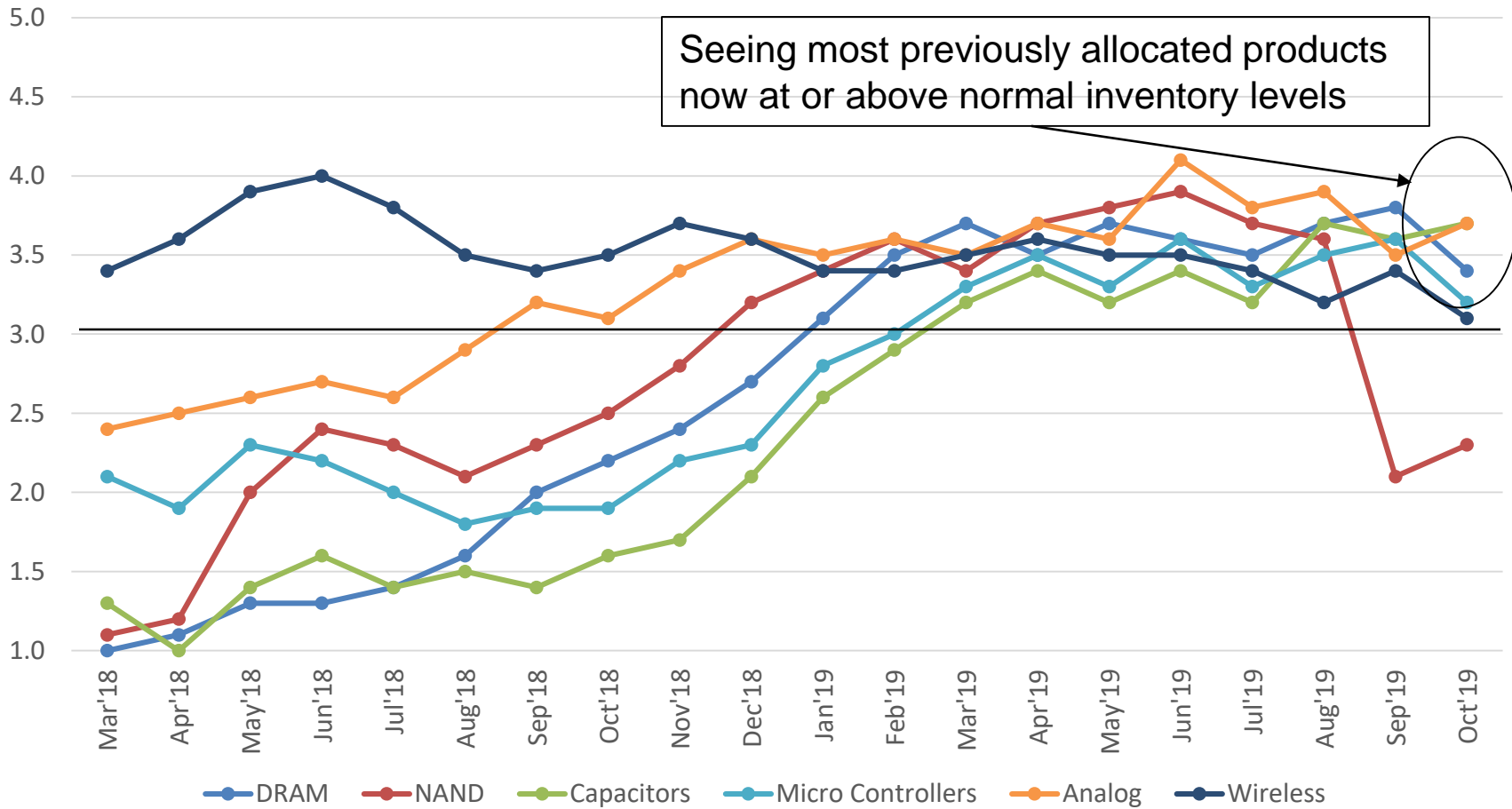


C4Q19 Inventories vs. C3Q19



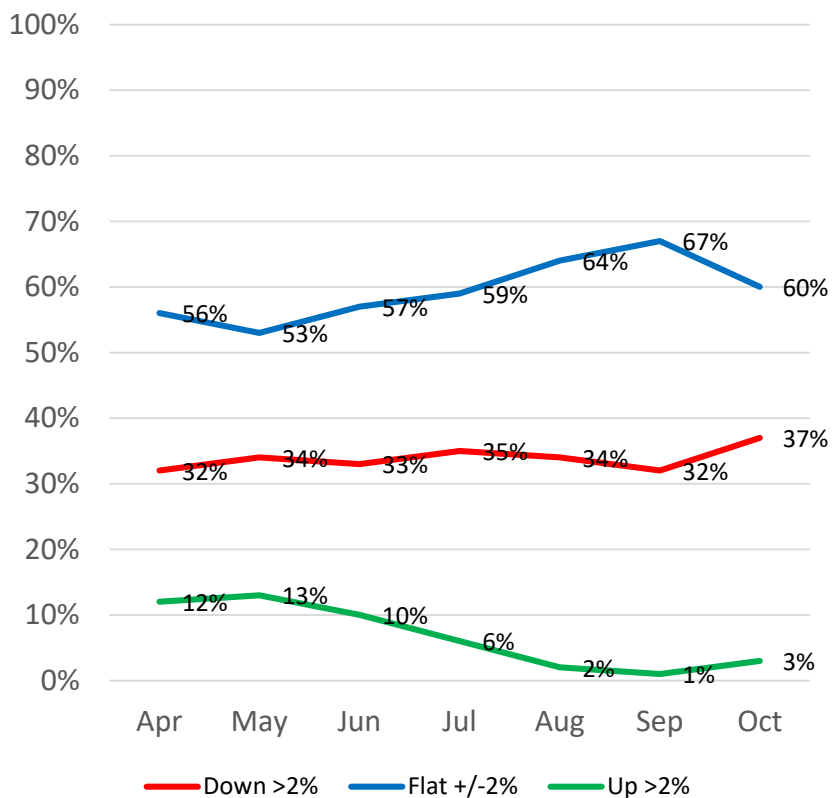
Inventory Status

(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?)

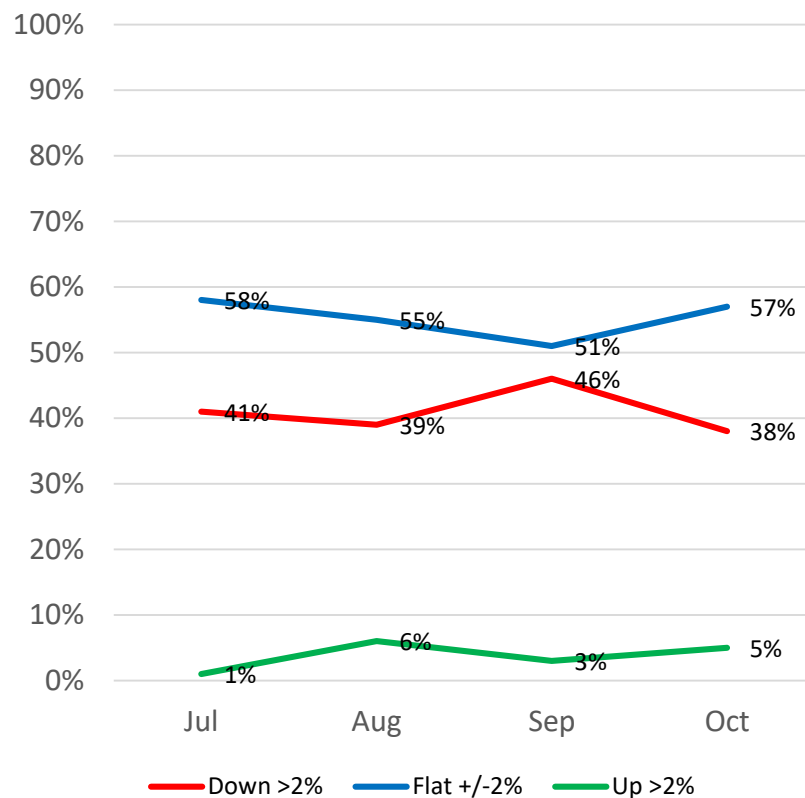


Q/Q Pricing Trends

C3Q19 Pricing vs. C2Q19

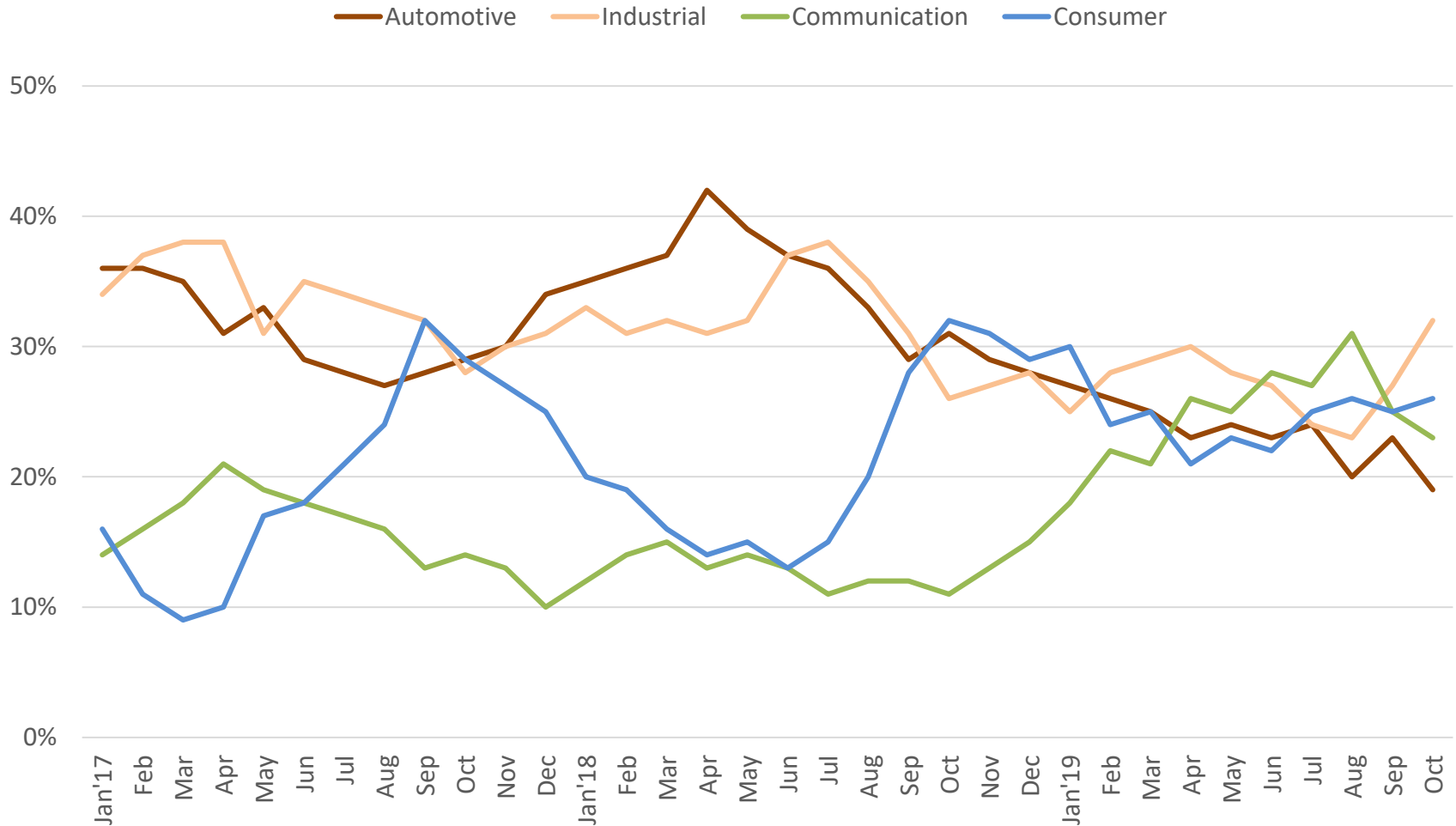


C4Q19 Pricing vs. C3Q19



Vertical Outlook

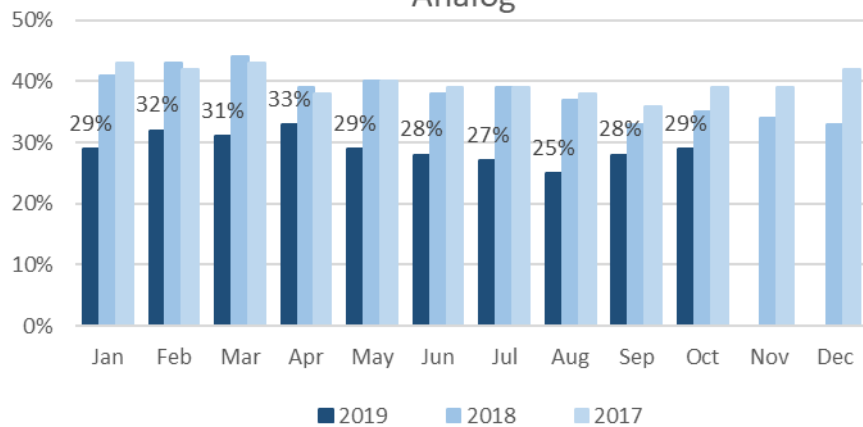
The outlook for Communications continues to be above previous years while Auto, Industrial, and Consumer are weaker than the previous 2 years



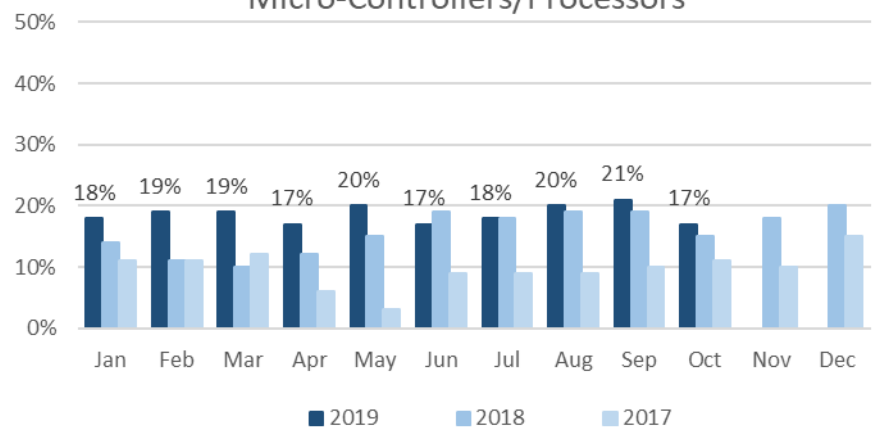
Technology Outlook Over Next 90 Days

(y/y comparison)

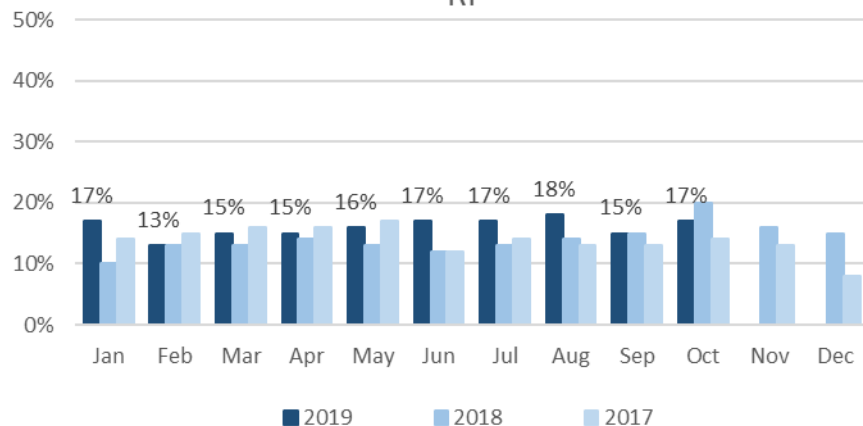
Analog



Micro-Controllers/Processors



RF



FPGA

