



# THE KWAMMENTARY

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**ODLUM BROWN**  
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## (Semiconductor) Chips and (Markets) Dip

I have a unique fondness for chips and dip, specifically the multigrain Food Should Taste Good brand tortilla chips and queso from Costco (disclaimer: this is not an ad). As with most things on my grocery list, my beloved chips and dip have gotten more expensive. I've already discussed price inflation causes and effects in previous writings, so I will not rehash that topic. However, as I sat thinking about the future of my relationship with my favourite snacking combo (over an irresponsible helping of said combo), it got me thinking about another type of chip that has also become very expensive, as well as a dip that we'd all like to avoid.

### Semiconductor Chips

From watches and TVs to fridges and pacemakers, all things with electronic components need semiconductor chips in order to work. A semiconductor, as the name implies, is a type of material that can "conduct" (i.e., move) electricity with varying degrees of ability. The material is not a full conductor, like a copper wire, nor is it a full insulator that blocks electricity flow, like glass (hence the "semi").

Semiconductor chips are semi-conductive materials that are designed to regulate electrical flow for specific purposes, like amplifying a signal or switching something on/off, and they underlie every piece of modern technology we use today. When these chips become expensive, everything that uses the chips becomes expensive. When these chips become scarce, it's even worse. Unfortunately, scarce and expensive is the situation we find ourselves in currently.

### State of the Semiconductor Industry

Here are a few interesting tidbits about the semiconductor industry as a whole:

- Globally, sales topped US\$400 billion in 2020.<sup>1</sup>
  - » China accounted for US\$151 billion, and the rest of Asia (excluding Japan) accounted for US\$118 billion.
- In terms of application, 32.4% of chips in 2020 were designed specifically for networking and communications purposes, with data processing following closely behind at approximately 30%.<sup>2</sup>
  - » These chips are used for 5G, telecom, cloud computing and AI – all very large themes that are likely to increase in importance over time.
- The leading region for semiconductor chip foundries is Taiwan, with Taiwan Semiconductors (TSMC) dominating that part of the industry.
  - » TSMC does the actual making of the chips, whereas a business like Apple would design the chips for TSMC to make for them.
- Semiconductors have significant geopolitical importance (similar to oil), and countries are investing a lot of money to make sure they remain competitive within their own borders.
  - » The U.S. is proposing a US\$50 billion investment into local research and development.
  - » South Korea is proposing a total of US\$452 billion invested into chip technology by 2030.
  - » China understands the geopolitical importance of securing access to high-quality chips, so they also are putting large sums of money toward that.

<sup>1</sup><https://www.statista.com/statistics/249509/forecast-of-semiconductor-revenue-in-the-americas-since-2006/>

<sup>2</sup><https://www.fortunebusinessinsights.com/semiconductor-market-102365>

<sup>3</sup><https://www.cnn.com/2021/05/17/semiconductors-nations-deploy-wartime-like-efforts-to-win-chip-race.html>

Since mid-2020, the semiconductor industry has been facing pricing pressures due to supply chain issues, which have stemmed from global lockdowns, natural disasters and labour shortages. Combine that with increased demand for all things electronic due to remote work, and we find ourselves in that constrained supply/over-demand environment that precipitates most crises.

We've already started to see repercussions in the automotive space,<sup>4</sup> prompting some manufacturers to idle factories and push newer model rollouts later into the year. Price increases have also followed, as the components going into vehicles are now more expensive. If we extend this view to other industries, such as semiconductors, the fallout is the same – less access to chips has forced manufacturing to slow and prices to rise.

### Putting it all Together

I had mentioned a “dip” at the top of this note that, unlike queso, we'd all like to avoid. What has been happening in the semiconductor space plays into the larger theme of inflation, given the far-reaching implications of pricing for the average consumer. Many argue that this recent bout of inflation will be short lived, as supply chains wake up from their COVID-19 slumber. Others make the case that this is a prelude to a more pernicious pricing trend and is cause for real concern. Both cases make markets jittery, as displayed by the volatility experienced this past May. My suspicion is that the volatility will persist, especially volatility due to inflationary fears. This should give us the opportunity to take advantage of market fluctuations to pick up businesses that will perform in any environment. So, if these chips come with a little dip, you can expect us to be snacking.

**As always, I'm happy to chat anytime and can be reached by phone or email if you have any questions or concerns regarding the markets or your investments.**

Sincerely,

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<sup>4</sup><https://www.forbes.com/sites/edgarsten/2021/05/05/gm-ceo-addresses-semiconductor-shortage-to-shareholders-while-reporting-q1-profit/?sh=73a2799c8fa7>

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