2020 Semiconductor Market Review & 2021 Outlook

SIA Roundtable

Dale Ford – Chief Analyst

February 4, 2021

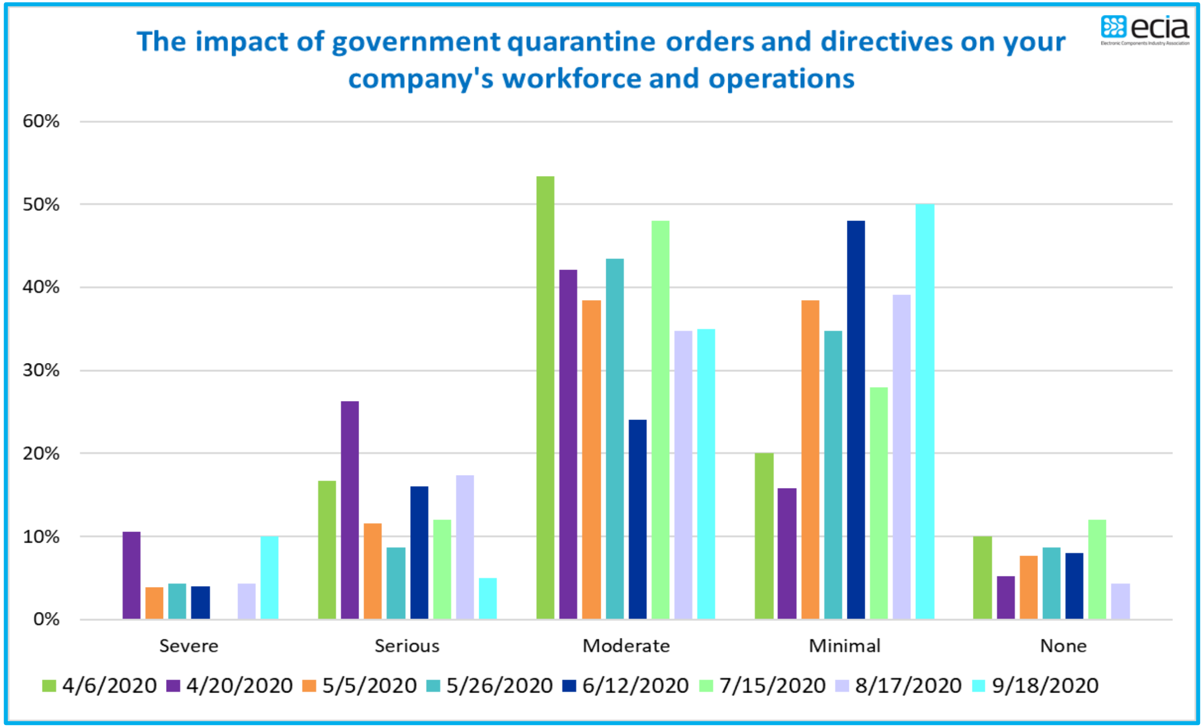
Electronic Components Industry Association

Looking Back

~ 2020 ~

A Whipsaw Disaster That Required a Nimble Response

COVID-19 Supply Chain Impact – 2020



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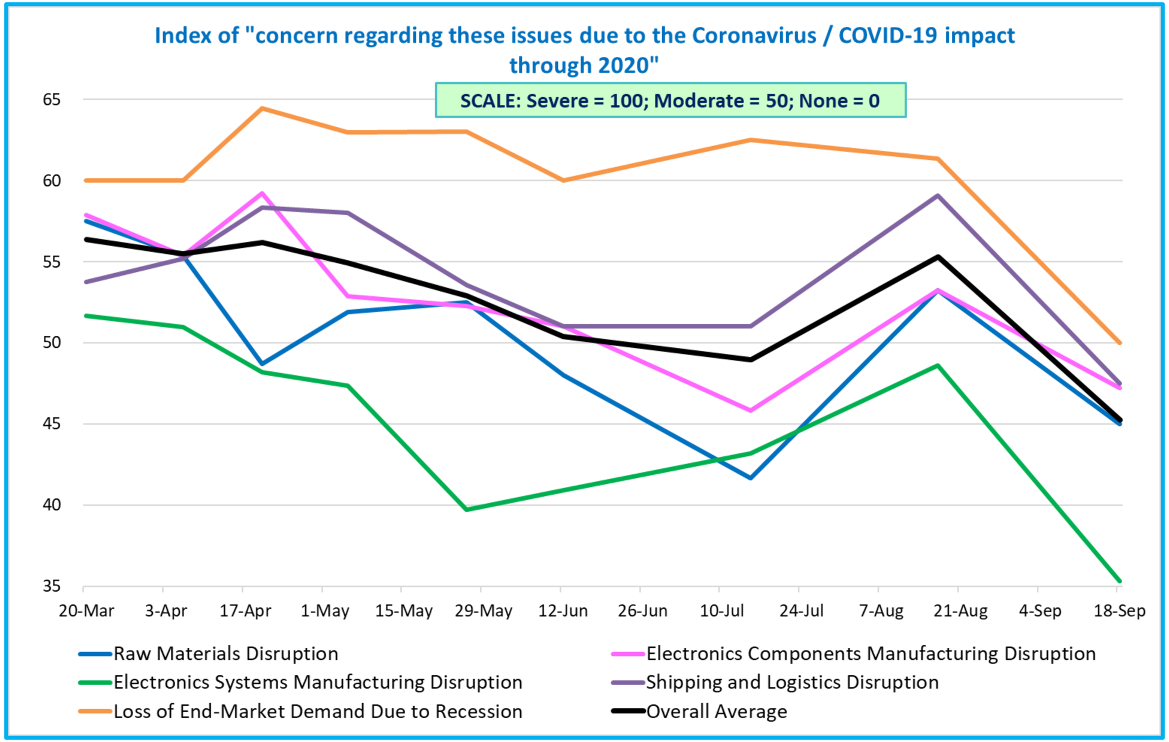
COVID-19 Supply Chain Impact – 2020



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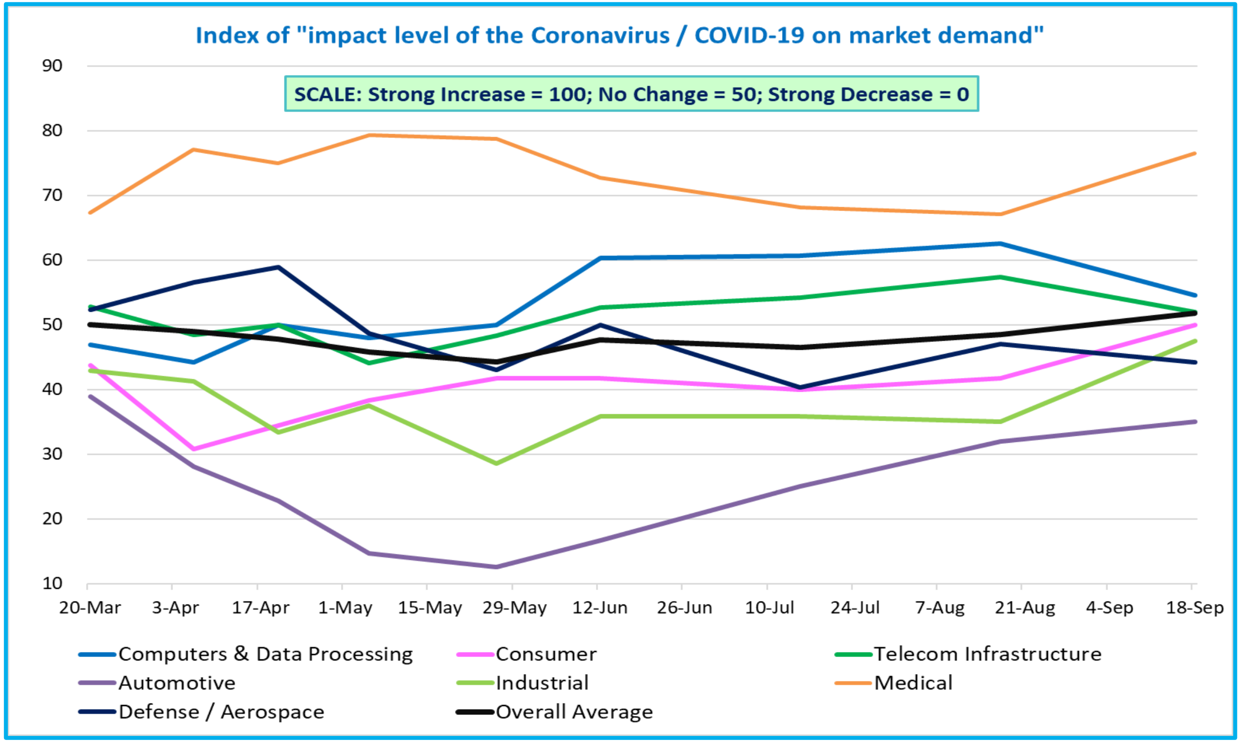
COVID-19 Supply Chain Impact – 2020



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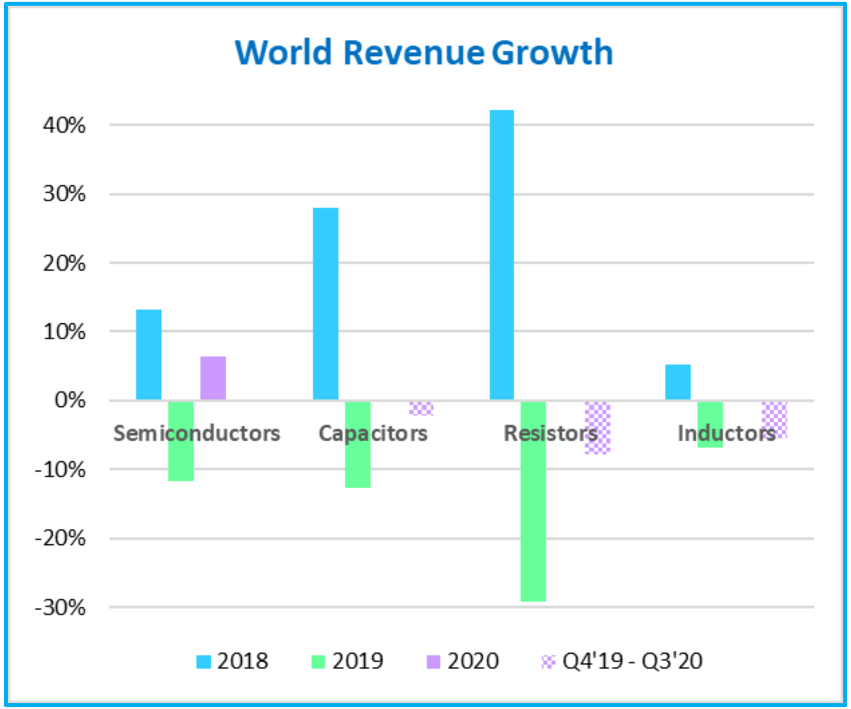
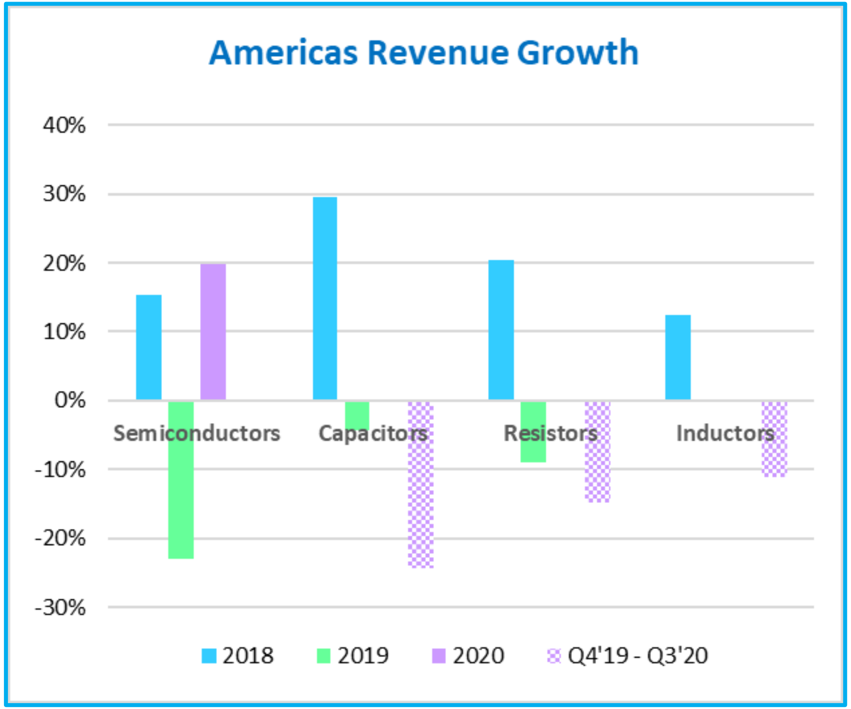
Electronic Component Revenue Growth





Source: World Semiconductor Trade Statistics (WSTS),
World Passive Trade Statistics (WPTS)

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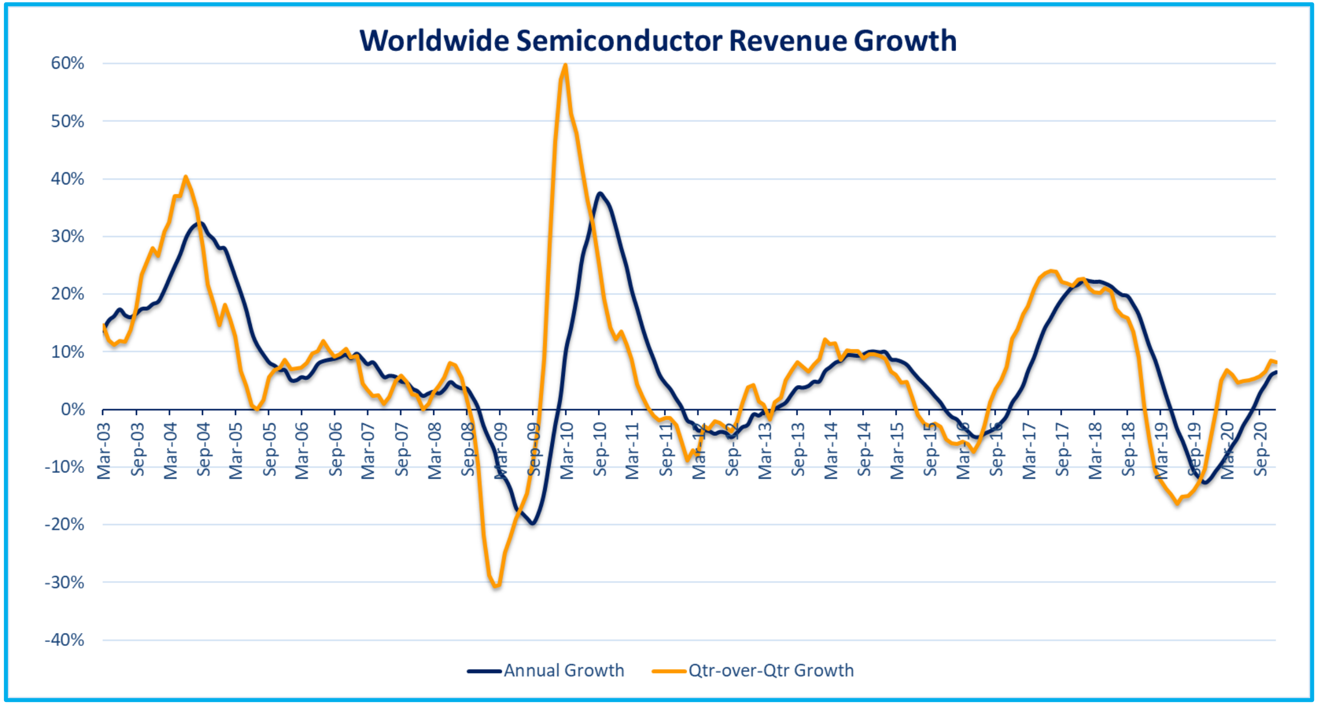
Looking Forward

~ 2021 ~

Semiconductor Revenue Growth Cycle

- Quarter-over-Quarter took a hit in summer 2020
- Annual revenue cycle trends up starting September 2019
- Annual revenue growth profile continued steady through 2020
- Annual revenue growth breaks positive in August 2020
- Strong demand and technology drivers
- Accelerating growth in 2021?



Source – WSTS

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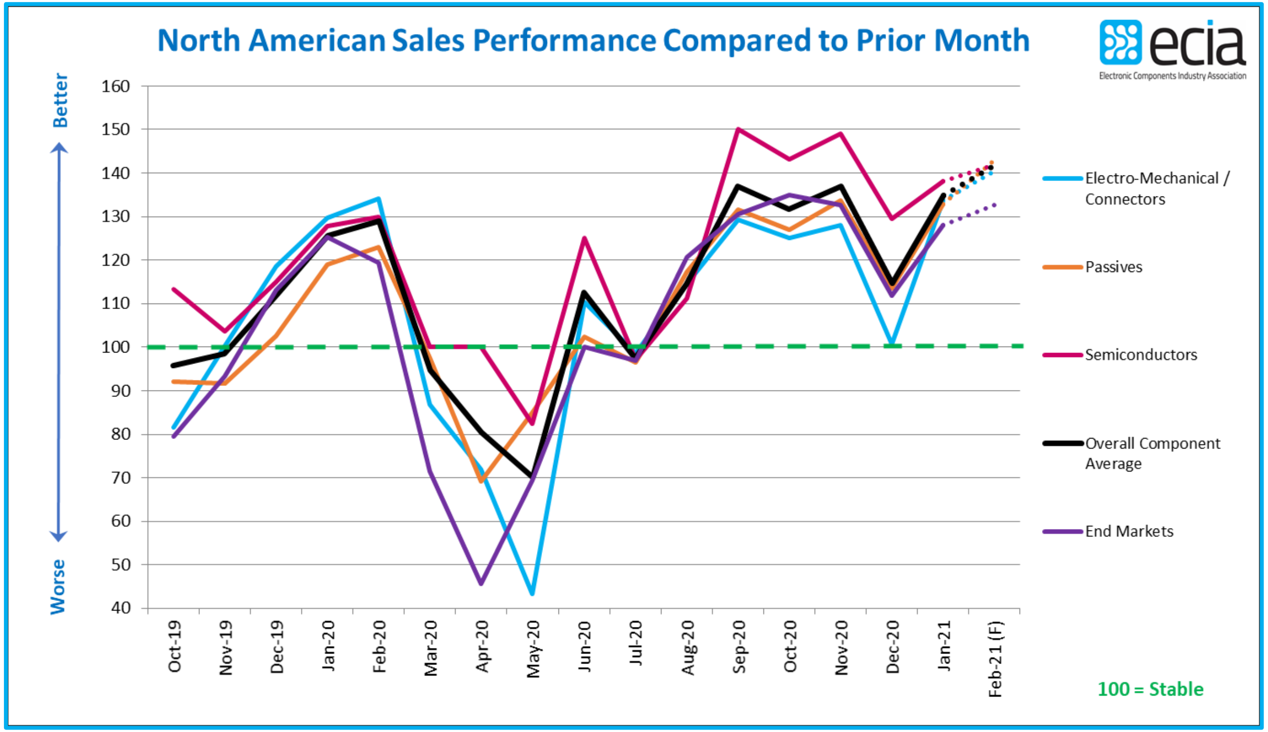
North America Sentiment Survey Trends



Source: ECIA Electronic Component Sales Trends Survey

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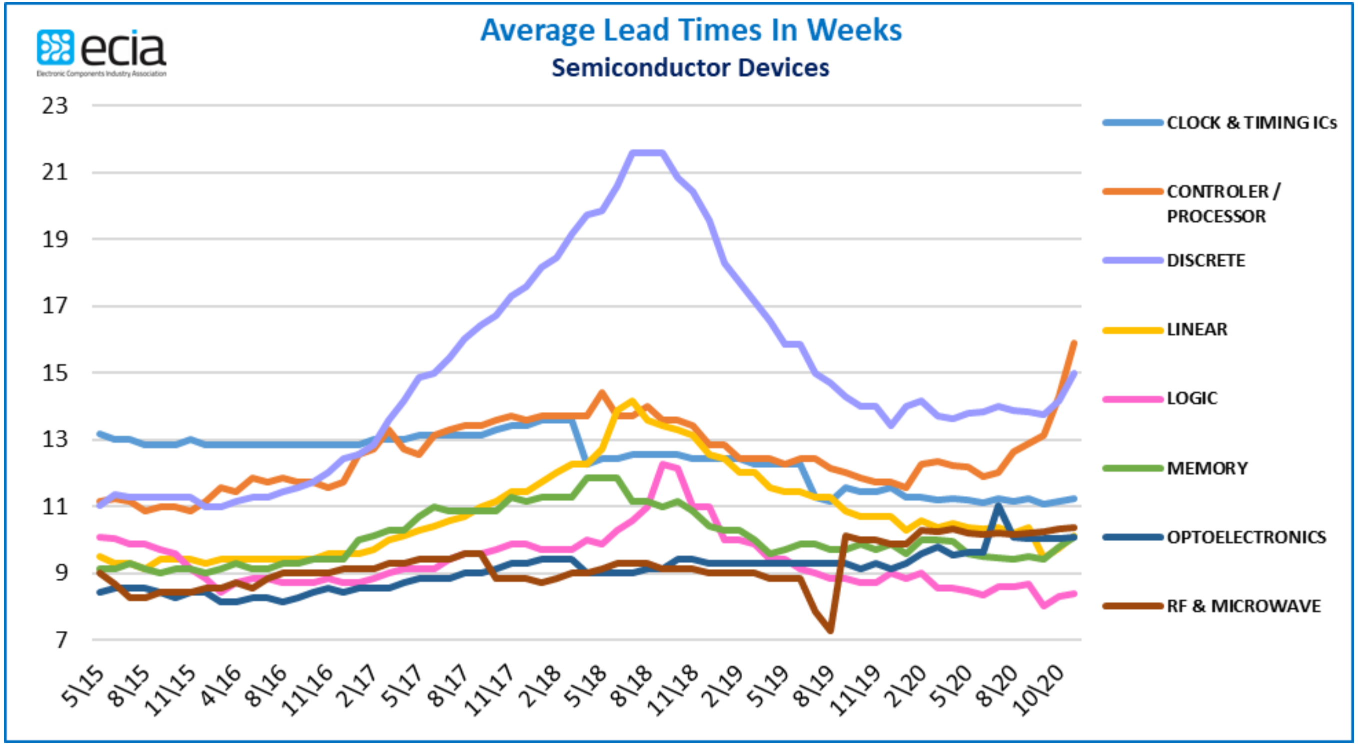
North America Lead Time Trends



Source: ECIA

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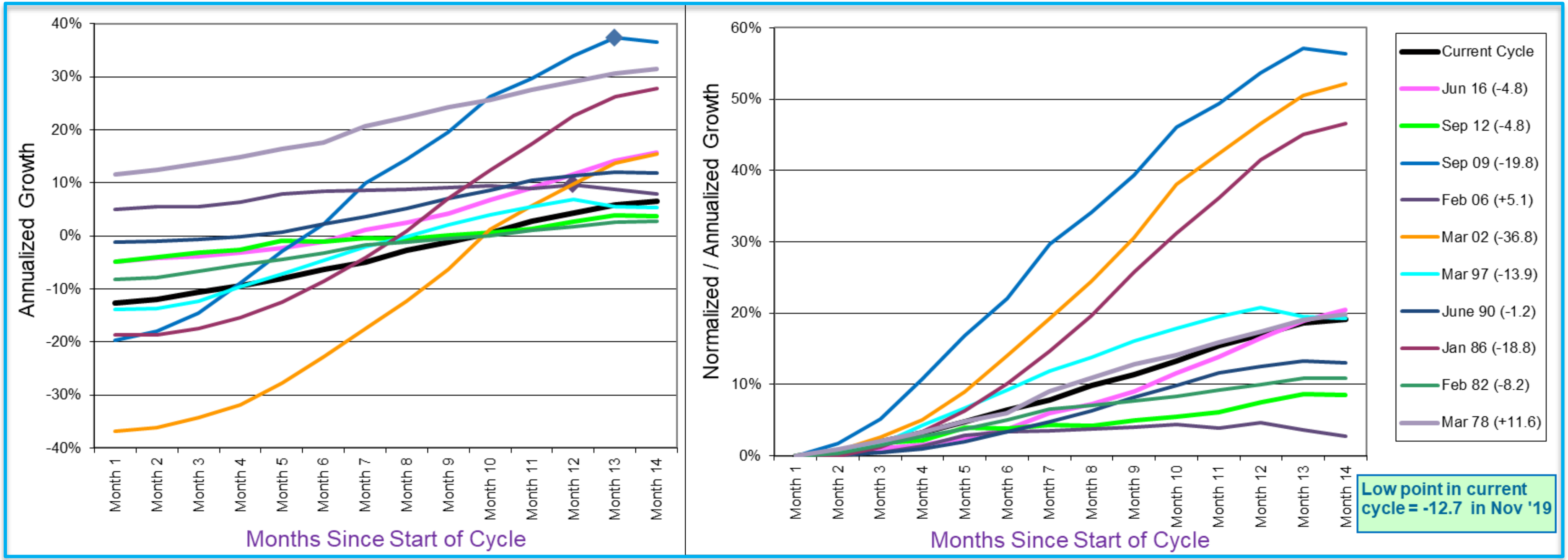
Solid Start to Current Cycle

Most cycles last about four years



Source – WSTS

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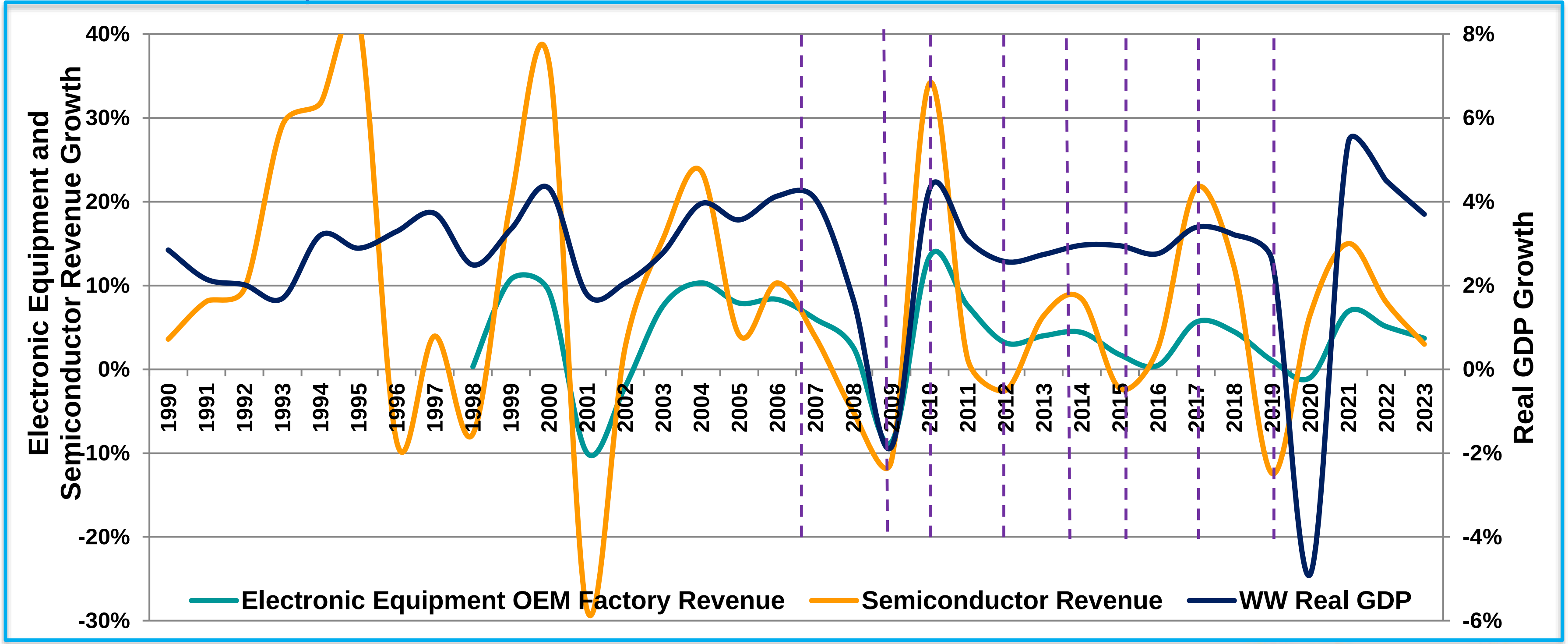
Semiconductor Revenue Growth Cycle

GDP Relationship



- Current Cycle – Global GDP creates drag on semiconductor growth
- Technology/Market forces aligning to support growth in 2020+

Source: IHSM Global Insight, OMDIA, IMF Forecast averages

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GDP Forecast Scenarios

Scenarios have evolved over time

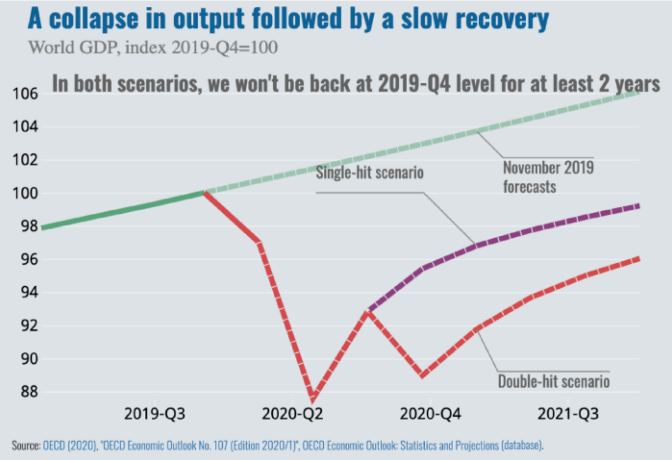
V – Shaped

U – Shaped

Bathtub – Shaped

Pi (π) – Shaped

W – Shape



(real GDP, annual percent change)	2019	PROJECTIONS 2020	2021
World Output	2.9	-4.9	5.4
Advanced Economies	1.7	-8.0	4.8
United States	2.3	-8.0	4.5
Euro Area	1.3	-10.2	6.0
Germany	0.6	-7.8	5.4
France	1.5	-12.5	7.3
Italy	0.3	-12.8	6.3
Spain	2.0	-12.8	6.3
Japan	0.7	-5.8	2.4
United Kingdom	1.4	-10.2	6.3
Canada	1.7	-8.4	4.9
Other Advanced Economies	1.7	-4.8	4.2
Emerging Markets and Developing Economies	3.7	-3.0	5.9
Emerging and Developing Asia	5.5	-0.8	7.4
China	6.1	1.0	8.2
India	4.2	-4.5	6.0
ASEAN-5	4.9	-2.0	6.2
Emerging and Developing Europe	2.1	-5.8	4.3
Russia	1.3	-6.6	4.1
Latin America and the Caribbean	0.1	-9.4	3.7
Brazil	1.1	-9.1	3.6
Mexico	-0.3	-10.5	3.3

Source: IMF

"A Crisis Like No Other, An Uncertain Recovery"
- IMF

The Swoosh Scenario
- Conference Board

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Economic Risk Factors

Economic Confrontations Between Major Powers

- World trade in manufactured goods has more than doubled between 2000 and 2017—from $4.8 trillion to $12.2 trillion. The U.S. share of world trade in manufactured goods has grown from 7.6% in 2002 to 8.7% in 2017. *(Source: World Trade Organization)*
- Globally Weak Investment Due to Low Expected Returns, Uncertainty About Economic Policy

Small Business Health

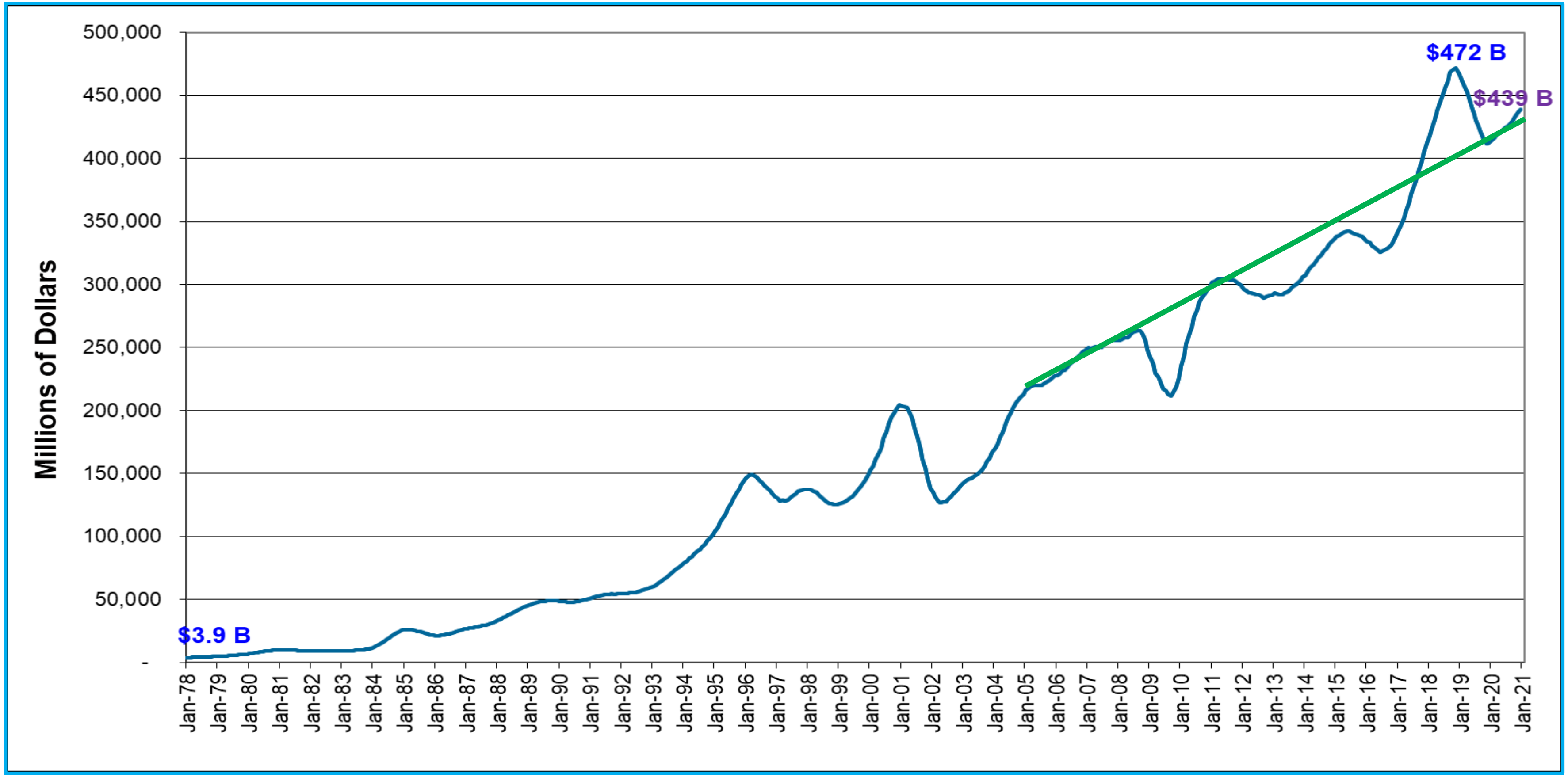
- The majority of manufacturing firms in the United States are quite small. In 2017, there were 248,039 firms in the manufacturing sector, with all but 3,914 firms considered to be small (i.e., having fewer than 500 employees). In fact, three-quarters of these firms have fewer than 20 employees. *(Source: U.S. Census Bureau, Statistics of U.S. Businesses)*
- Unemployment and State Lockdown Orders

Energy Shocks

- Manufacturers consume more than 30% of the nation's energy consumption. Industrial users consumed 32.3 quadrillion Btu of energy in 2018, or 32.3% of the total. *(Source: U.S. Energy Information Administration, Annual Energy Outlook 2019)*

Societal and Political Turmoil

Long-term Semiconductor Growth Trends



Source – WSTS

Semiconductor

Market Drivers

Market Outlook

- Technology and market drivers build momentum
- Economic stability needs to provide solid foundation
- Adoption of new technologies in systems drives expanding design opportunities
- Opportunities for new component technologies to make a mark
- But don't overlook need for legacy manufacturing capacity

Positives

- Medical Equipment
- Data Centers
- Telecom Infrastructure
  - 5G
- Solid state drives
- "Touchless" solutions
- Memory
- Sensors

Challenges

- Automotive Electronic Component Supply
  - Expanding to others?
- Aerospace Electronics
- Global Trade
- Inventory / Supply Chain Management

Market Outlook – Long Term Future Still Bright!

The Developing Technology Triumverate