

# The Coronavirus, Chaos Theory, And Its Industry Impact

**T**he “butterfly effect” is the analogy often used to explain chaos theory—the idea that seemingly minor actions in an interconnected world can have major consequences. The butterfly that flaps its wings in Tokyo could conceivably set off a chain of events culminating in a tornado in Chicago. With the COVID-19 coronavirus we’re seeing this theory play out in real time—a viral mutation discovered in China’s Hubei province two months ago is now having far-reaching effects on the global economy, and the music products industry has not been spared. The extent of the outbreak’s impact on global health remains an unanswered question, but its commercial consequences are already apparent.

As a precautionary measure to prevent a contagion, the Chinese government has closed factories and quarantined entire cities. Flights to and from China has been suspended, and the export of goods from China have dramatically slowed. Japan, Korea, and even Italy are taking similar preventative steps. The resulting disruption has prompted numerous large companies including Apple, Intel, and General Motors to warn investors that their near-term results may suffer. Investors have also taken note: as of this writing, major stock indexes have shed 10%.

Leading music industry suppliers have yet to determine whether the coronavirus and the accompanying precautionary measures represent a temporary disruption in supply or a longer-term challenge. However, the outbreak has already called into question the wisdom of two widespread industry practices: outsourcing production to China, and “just in time” inventory.

Over the past two decades, countless Western brands have shifted production to China to take advantage of the lower cost structure and high productivity. This transition has helped keep selling prices on most products well below the prevailing inflation rate. It has also turned China into the world’s largest manufacturer of music and audio products, supplying approximately 40% of the \$8.0 billion in music and audio products sold in the U.S. last year: everything from traditional violins to cutting-edge electronics. When you add in all the components and sub-assemblies that Chinese factories supply to U.S., Japanese, and European producers—screws, capacitors, potentiometers, speaker magnets, etc.—it’s a safe bet that products originating in China provide U.S. retailers with at least half their revenue.

Any slowdown in this supply chain is bound to have ripple effects in much the same way the butterfly’s wings influence the weather in a distant locale.

The impact of constrained production capacity in China could be magnified by the nearly universally embraced “just in time” approach to inventory management. Competitive pressures have prompted suppliers and retailers to cut their capital costs by accelerating inventory turnover. More revenue with less inventory has a salutary effect on profits—until, that is, you run out of merchandise or have to shut down production. Right now, fear of “running out” is a real concern.

We would venture that the economic damage arising from the coronavirus (which hopefully will be minimal) will be offset by long-term structural changes that will strengthen the industry. Just as natural organisms develop antibodies to fight off viral infection, commercial enterprises have an uncanny ability to adapt to adversity.



The ongoing U.S./China trade spat prompted suppliers worldwide to begin rethinking their dependence on Chinese factories. As just one example, grand piano imports from Indonesia surged by 50% last year as production shifted away from China.

The coronavirus has accelerated that process. Suppliers we talk to say “diversifying the supply chain” has become a top priority, and they are now exploring production sites in Malaysia, Thailand, Vietnam, and even the United States. A year from now, the sources of supply for music and audio gear will undoubtedly be materially different. Also, don’t be surprised if retailers and manufacturers begin weighing the benefits of maintaining inventory “reserves.”

The immediate hope is that health professionals can contain the disease, minimize human suffering, and quickly relegate COVID-19 to a dark memory. With so much uncertainty at the moment, it’s premature to suggest any advice, other than the old Boy Scout motto, “Be Prepared.” To the definition of history as “one damn thing after another,” we would add the qualifier: “entirely unanticipated.” Add the coronavirus to the long list of unexpected events that have roiled our industry, including the 2008 financial crisis, the bursting of the dot.com bubble, 9/11, oil shortages...you get the idea. What these various crises had in common was that they were all only temporary setbacks—our industry and the world at large continued to advance. We remain optimistic that the same will be said about the coronavirus.

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