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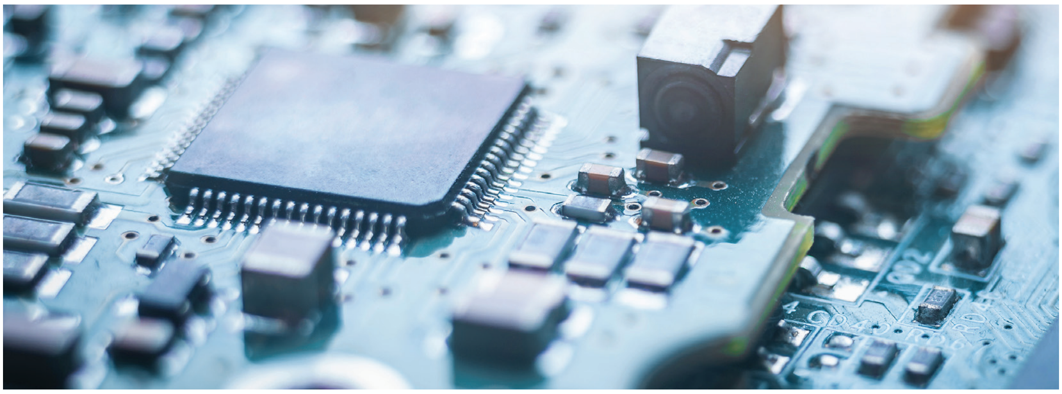

TECHNOLOGY: ONE WORLD, TWO SYSTEMS

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Chetan Sehgal, CFA
Director of Portfolio Management
Franklin Templeton Emerging Markets Equity

SUPPLY CHAINS UNDER STRESS

In recent years, international supply chains have come under mounting pressure. Even before COVID-19, a growing number of companies and countries were already looking to diversify away from a perceived excess dependence on China, borne from rising Chinese labor costs paired with escalating trade tensions with the United States.

As Sino-US rivalry has extended from trade to technology, we're seeing the development of "one world, two systems" in which geopolitical considerations play an increasingly dominant role in driving technology and trade patterns. This is already evident when it comes to the online giants—US companies regarded as household names such as Google, Amazon and Facebook do not have much, if any, presence in China's online ecosystem.

The global pandemic has driven demand for greater resilience and security of supply chains, further reinforcing this structural shift. Global supply chains are starting to fracture, which poses challenges but also opportunities for those companies able to effectively navigate this changing environment.

ADAPTING TO STRUCTURAL CHANGE

In our view, the sheer size and efficiency of China's manufacturing sector will ensure it remains a crucial part of global supply chains for years to come. It is those companies integral to global technology hardware production—supplying key products to both China and the United States—that may have to be most adaptive. As active, engaged investors, we identify three characteristics that may facilitate success:

- Intellectual Property: Semiconductor foundries benefit from the structural themes driving global demand for computing power, rather than being dependent on the fortunes of specific companies—whether Chinese or American. Technological leadership enables a virtuous cycle of growing market share that funds research and development and increased capital expenditures.

- Improving Competitive Dynamics: US tariffs and sanctions have negatively impacted the competitiveness of certain Chinese technology companies, entailing opportunities for others to grow international market share in smartphones and fifth-generation (5G) network equipment.
- Global Diversification: As supply chains fragment, those companies with pre-existing worldwide production capabilities will likely demonstrate greater resilience and adaptability.

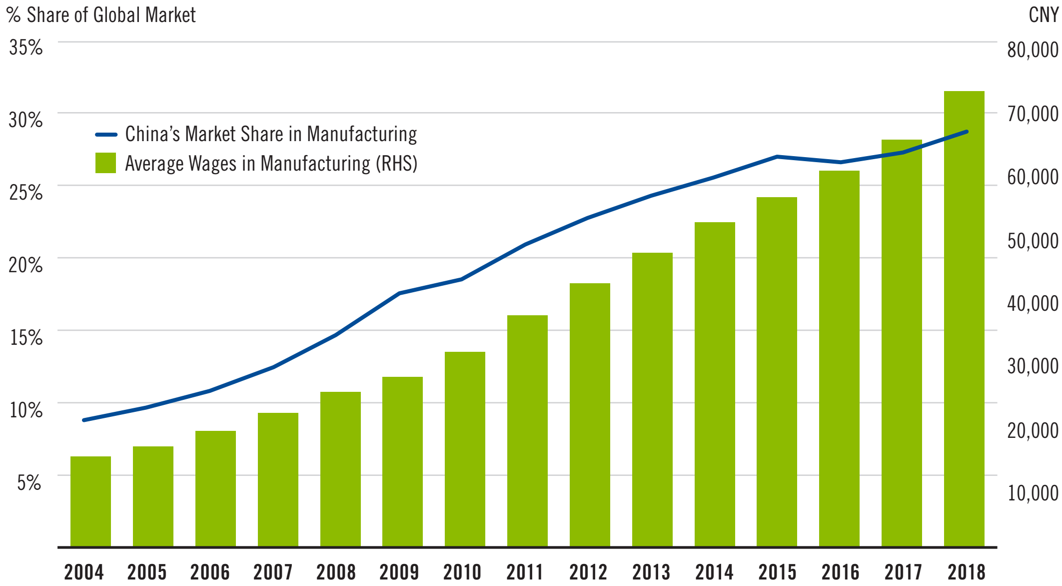
REVERSE GLOBALIZATION

Since China's entry to the World Trade Organization in 2001, its share of global manufacturing has steadily increased as the country became the "world's factory," integral to global supply chains. Over the last two decades, however, China's labor costs have steadily risen, while in more recent years geopolitical tensions with the United States have increased considerably. An initial trade war has broadened into a "tech war" involving tariffs, sanctions and export controls, increasing the attractiveness of alternative manufacturing locations.

CHINA'S MANUFACTURING MARKET SHARE

Exhibit 1: China's share in manufacturing output vs. growth in labor costs

2004–2018



Sources: Franklin Templeton Capital Markets Insights Group, UN FAOSTAT, Macrobond. Manufacturing output is measured by value added in manufacturing sector.

This structural trend has been accelerated by COVID-19: the pandemic exposed how vulnerable global supply chains are to disruption, with companies in over 80% of global sectors impacted.[1]

China and the United States are competing for leadership in technology, while also seeking improved security in the production and supply of goods essential to national security. We expect this to drive development of dual supply chains, which we characterize as "one world, two systems."

BREAKING UP IS HARD TO DO

What comes next depends on how well companies adapt to and manage the transition of supply chain operations in whole or in part. Building another production cluster isn't cheap—it is estimated that to relocate all foreign manufacturing within China not intended for the domestic market would cost an initial US$1 trillion, while also reducing ongoing company efficiency.[2] Economies of scale would be harder to achieve—strong balance sheets and free cash flow generation are critical, while government incentives are also important.

In our view, companies able to achieve success amid such global upheaval require considerable resilience—with three attributes outlined below.

1. Intellectual Property Leadership

The production of a semiconductor requires two distinct phases: design and fabrication. Historically many chip designers outsourced production to foundries with specialized manufacturing prowess and lower costs. The complexity of fabrication has increased as semiconductor chips have shrunk—with process nodes measured in nanometers (nm)—which is to say that computing power, reliability and energy consumption have improved for a given size.

Over time ever fewer companies have been able to progress to the next level of technology, with market share increasingly concentrated in companies with superior intellectual property. With few remaining "integrated" semiconductor companies producing the chips they design, these companies have entailed the use of third-party foundries, representing a significant milestone in terms of competition and market share for those contracted.

Leading Asia-based foundries have become essential to global supply chains—whether producing chips for multinational companies or those integrated semiconductor companies. While tighter US export controls cause near-term disruption—for example, limiting chip supplies to Chinese companies—this has limited impact longer term. The end consumer demand for smartphones, and their semiconductors, does not change, only the client mix.

With increased market concentration leading foundries have the financial resources to expand internationally, bringing production closer to key markets amid changing global supply dynamics.

2. Improving Competitive Dynamics

Amid increased distrust and rivalry, leading Chinese technology companies are bearing the brunt of sanctions and suspicion, reducing their ability to compete internationally.

This is evident through companies choosing to shift manufacturing intended for export out of China. A prominent global company's last smartphone factory in China shut its doors in 2019, citing intensifying domestic competition. The conglomerate shifted production to a purpose-built 35-acre facility in Noida, India, which is expected to create 15,000 jobs and raise domestic smartphone production capacity from 67 million to 120 million. The company already has extensive local manufacturing capabilities globally—including Brazil, Vietnam, Indonesia and in its home market.

US restrictions on Chinese companies could block access to US technology, including smartphone software as well as advanced semiconductors—both integral to the company's smartphones, severely limiting their appeal to international consumers. Similarly in India, rising tensions with China have resulted in the US government imposing bans on numerous Chinese mobile apps. The move has affected the leading smartphone brand in India, which pre-installs a number of these on its phones.

5G networks is another industry seeing widespread disruption as a result of national security concerns. As countries become closely aligned with the United States, from India to the United Kingdom, they could phase out Chinese equipment from their 5G infrastructure. We see some growth potential as there have been multiple billion-dollar 5G deals in the United States alone during 2020.

3. Global Diversification

Companies with experience building and managing worldwide manufacturing networks are likely to be more adaptive in responding to increased demands for localized production.

A Taiwanese multinational electronics contract manufacturer based in New Taipei City has long relied on a worldwide production network, across roughly 70 sites in 13 countries. Illustrating "one world, two systems," the company recently announced plans to create two distinct supply chains, since "(China's) days as the world's factory are done." Approximately 80% of its client base is non-Chinese and thus the current 30% of production outside of China is set to rise substantially. Concurrently, the company is facing pressure on market share in the Chinese domestic market, demonstrating the complex interplay of competitive forces across dual supply chains.

China's efforts to ensure its own security of supply, with greater local production of goods for the domestic market by Chinese companies, have resulted in substantial share price gains of potential beneficiaries, across various technology sub-sectors. For example, a Chinese company that manufactures smartphone parts, has now risen to be a respected domestic competitor to a prominent Taiwanese smartphone part manufacturer. The company enjoys a greater market capitalization despite overall revenues and profits being substantially lower than key international competitors,[3] suggesting very high market expectations for future earnings. While China's domestic market is massive, the potential for such competitors to successfully expand in scale outside of China remains a critical component of their long-term sustainability and is yet unproven.

OPPORTUNITY AMID UNCERTAINTY

The COVID-19 pandemic has sharply highlighted the fragility of complex global supply chains, adding impetus to the re-shoring and localization of production essential to national security. We do not expect this environment to be meaningfully altered by the outcome of the US elections, though rhetoric could escalate.

We are seeing tectonic shifts taking place in the structure of global trade and manufacturing in technology. We believe there are growth and investment opportunities for many companies that can adapt to and overcome challenges.

Endnotes

1. Source: BofA Global Research, July 2020.
2. Ibid.
3. Nikkei, Luxshare grows into China's iPhone champion with help from Apple, August 14, 2020.

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