TD Global Investment Solutions

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Reinventing Globalization Part I:

Playing the Movie in Reverse

Kevin Hebner, PhD
Managing Director, Global Portfolio Management, TD Epoch

William W. Priest, CFA
Executive Chairman, Co-Chief Investment Officer & Portfolio Manager, TD Epoch

- Rising tensions between the U.S. and China have brought national security issues back to the fore after a multi-decade hiatus. As a result, global supply chains are being overhauled to reduce vulnerabilities and to restrict Chinese imports of "dual-use" products that can be used for both commercial and military purposes.
- Consequently, industrial policy, which had been tossed aside after the first Cold War, has returned as a bipartisan priority. The initial focus is on semiconductors and energy but is certain to broaden over the coming years (to include AI, quantum computing, and other advanced tech).
- The two biggest beneficiaries of hyper-globalization have been China and U.S.-based multi-national corporations (MNCs). As the globalization movie is played in reverse, we expect Chinese equities to underperform. Many American MNCs will also take a hit as exports to China frequently accounted for 40% of their revenue growth over the last decade.
- In Reinventing Globalization Part II, we demonstrate that:
  - Deglobalization implies a regime change, with trend increases in both capex and the labor share, as well as a higher cost of capital. This constitutes a secular headwind for margins and free cash flow (FCF), especially for tech and manufacturing companies.
  - As a result of the 3Ds (deglobalization, demographics and decarbonization), we are not returning to the low inflation, zero real interest rate 2010s. Moreover, with the end of the "Great Moderation," we forecast higher macro volatility (of growth, inflation, interest rates and FX).
  - With companies likely to face a higher cost of capital, we expect lower average multiples. This will prove especially challenging for longer duration assets, such as venture capital and speculative tech companies that are years away from producing FCF on a sustainable basis.

> **Going forward, it will be increasingly difficult to separate economic issues from broader considerations of national interest, including national security.**
>
> **— Janet Yellen, U.S. Treasury Secretary, April 2022**

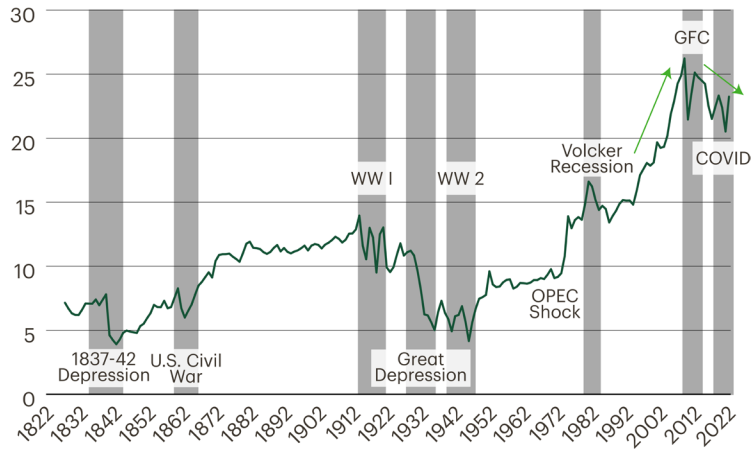
Globalization's golden age began around 1980 **(Figure 1)**, turbo-charged by three developments: (1) The pro-market policies of U.S. presidents from Reagan through George W. Bush (with allies like UK PMs Thatcher and Blair); (2) Chinese economic reforms under the leadership of Deng Xiaoping from 1980; and (3) the USSR's dissolution in 1991.

Globalization peaked in 2008 with the Global Financial Crisis (GFC) which led to pushback against hyper-globalization and the primacy of markets. However, developments in China have been even more important **(Figure 2)**. President Xi's first term began in 2012 and since then he's forcefully emphasized national security and self-reliance, especially regarding energy, food, and technology. His foundational policies, particularly "China 2025," "Dual Circulation" and "Common Prosperity," have collectively forged "Fortress China" and thereby, shattered the golden age of globalization.

> **Semi-conductors may be to the twenty-first century what oil was to the twentieth. If so, the history of semi-conductors will be the history of the twenty-first century.**
>
> **— Larry Summers, July 2022**

Figure 1: World Merchandise Exports (% GDP)

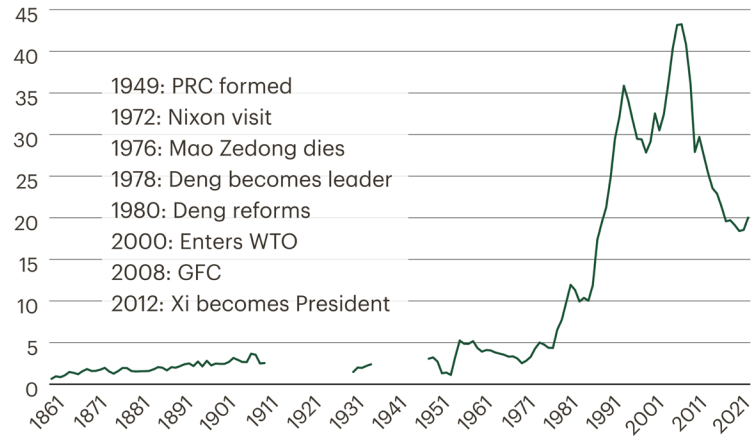
Hyper-globalization's brief reign: Global trade soared from 1980 through 2008



Source: Bloomberg, Our World in Data, Fouquin and Hugot (2016), TD Epoch

Figure 2: China Exports (% GDP)

China's disproportionate impact on the rise and fall of globalization's golden age



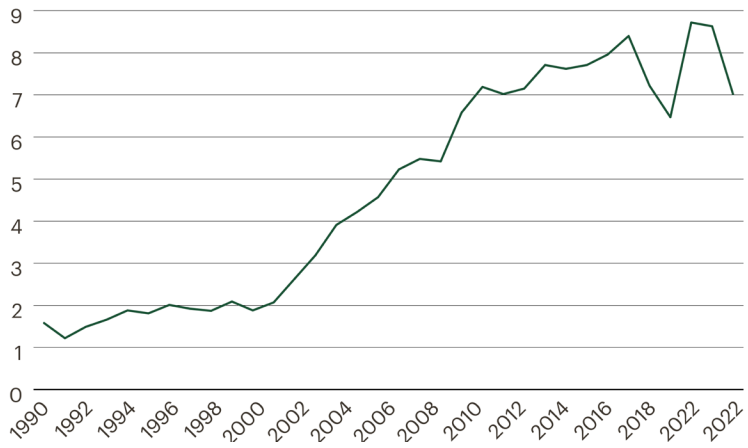
Source: Bloomberg, Our World in Data, Fouquin and Hugot (2016), TD Epoch

Global supply chains are being reinvented because trade with China raises two national security issues. First, while global supply chains are extremely efficient and much beloved by economists, many are inherently fragile and vulnerable. To illustrate, think of Europe's dependency on Russian natural gas, challenges obtaining personal protective equipment during the early months of COVID and everyone's dependency on Taiwan for semiconductors.

Second, many of America's exports are "dual-use" products, that can be used for both commercial and military purposes. This is especially true of Advanced Technology Products (ATP), a classification that includes biotech, chips, robotics, guided missiles, communication satellites, and nuclear reactors **(Figure 3)**. Given State Department concerns about Military-Civil Fusion (MCF), we expect the U.S. will continue to tighten controls so that exports of ATP to China fall dramatically over coming years.[1]

Figure 3: China's Share (%) of U.S. Advanced Technology Product Exports

China accounted for 39% of the growth in U.S. ATP exports from 2008-2020. Similarly, it represented 40% of the growth in U.S. semiconductor exports over the last decade.



Source: U.S. Census Bureau

> **Key technologies being targeted under MCF include quantum computing, big data, semiconductors, 5G, advanced nuclear technology, aerospace technology, and AI.**
>
> **— U.S. State Department[2]**

Elevating National Security: After a Four-Decade Hiatus, Industrial Policy is Increasingly De Rigueur

> **A bipartisan consensus has emerged in the past two years on one issue, and perhaps on one issue alone: China. … Congressional Republicans and Democrats seem almost to vie with one another to see who can be more hawkish on this subject. … Cold War II is a bipartisan endeavor. … woe betide anyone who risks being accused of being 'soft' on China."**
>
> **— Niall Ferguson, Stanford, November 2022**

One consequence of the rising rift with China is that industrial policy has returned as a bipartisan priority, with three important actions taken in D.C. during the last few months. The most recent is the October 7 announcement of export controls, aimed to choke off China's access to AI and semiconductors. These controls tightened measures announced previously[3] and will almost certainly be augmented by fresh

[1] According to Niall Ferguson, the National Security Council is currently pushing for an executive order by year-end that would cover quantum computing and AI.

[2] 2017-2021.state.gov/military-civil-fusion/index.html

[3] Including actions taken against Semiconductor Manufacturing International Corporation (SMIC) in 2020, Huawei in 2019 and ZTE in 2016. "National Security, Semiconductors, and the U.S. Move to Cut Off China," Nov 2022, by Chad Brown, Peterson Institute.

restrictions in the coming months. U.S. policymakers are determined to cut off China from the supply of American-made chips and design software to ensure its capabilities remain generations behind.

The second action was the bipartisan CHIPs and Science Act, which was signed into law in August, with the primary aim of revitalizing U.S.-based semiconductor fabrication **(Figure 4)**. The Act provides $280 billion over ten years, including $80 billion in subsidies and tax credits to encourage investment in domestic semiconductor manufacturing and equipment. CHIPs also includes $200 billion for tech R&D, which is likely to prove the Act's most durable and impactful feature.

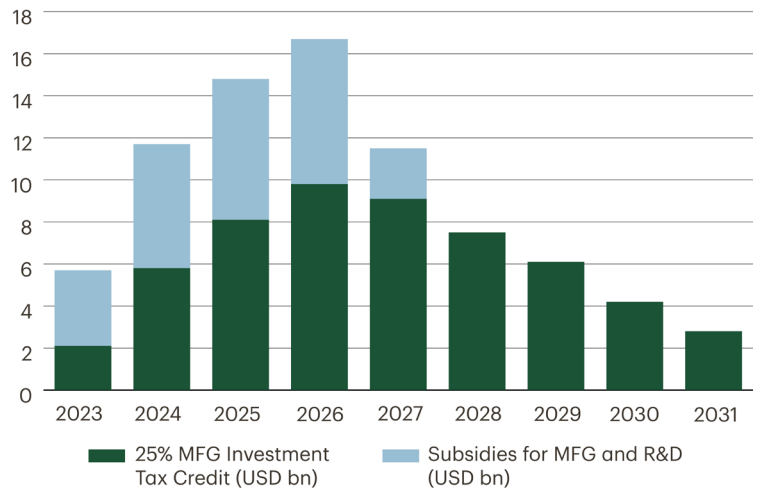
Reflecting this new emphasis on domestic chip production, during the last year or so there have been numerous announcements to build or expand semiconductor fabrication in at least four states (Arizona, New Mexico, New York and Texas). This is just a start and will require significant government subsidies over the long term. However, the cost of constructing and operating a fab is much higher in the U.S. than in Taiwan or South Korea. To be more specific, TSMC's founder, Morris Chang, recently emphasized the costs in the U.S. will be 55% higher than in Taiwan.[4] Similarly, the Boston Consulting Group estimates "a new fab in the U.S. costs approximately 30% more to build and operate over 10 years than one in Taiwan, South Korea, or Singapore ... As much as 40-70% of that cost differential is directly attributed to government incentives."[5]

> **The most important development in Sino-US relations since China joined the WTO in 2001 ... came into effect quietly on 7 October.**
>
> **— George Magnus, Oxford University, October 2022**

> **A superpower declared war on a great power and nobody noticed.**
>
> **— Edward Luce, Financial Times, October 2022 (on the October 7 export control measures)**

Figure 4: Chips Act: New Spending Estimates (USD bn)

$80 bn over a decade isn't enough to be truly transformational, but it represents an important first step



Source: Congressional Budget Office, Joint Committee on Taxation, Center for Strategic and International Studies, Goldman Sachs, Bloomberg

> **Given the foundational nature of certain technologies, such as advanced logic and memory chips, we have to maintain as large of a lead as possible.**
>
> **— Jake Sullivan, National Security Advisor, September 2022**

[4] "TSMC founder, Kamala Harris talk chips at APEC meeting," Focus Taiwan, Nov 2022.

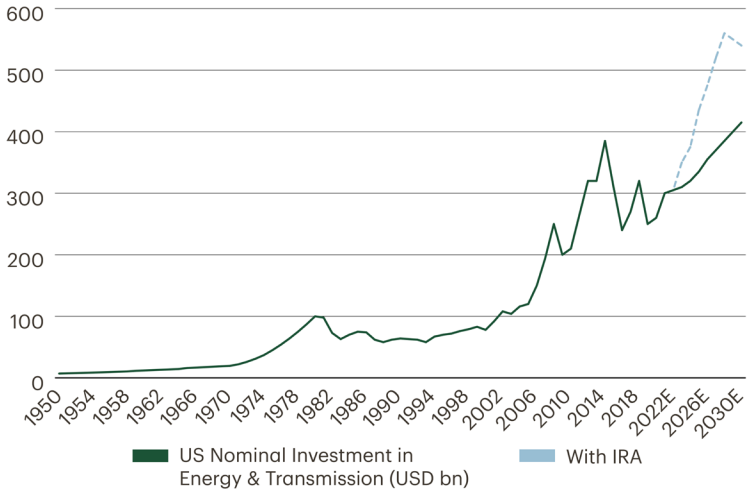
[5] "Turning the tide for semiconductor manufacturing in the U.S." 2020.

> **Everything we're competing on in the twenty-first century … all of it rests on the cornerstone of semiconductor master.**
>
> **— Senior Trump administration official (as quoted in "Chip War: The Fight for the World's Most Critical Technology," by Chris Miller, Tufts, October 2022)**

Ramping up domestic chip production faces two major hurdles (beyond the relative paucity of government subsidies). First, companies looking to build a fab in the U.S. are required to navigate the menacing complexity of local, state, and federal regulations. Further, a skills gap exists in virtually every job category. Announced plans mean an additional 70,000 to 90,000 fab workers will be needed, commanding a diverse array of highly specialized skills. This includes PhDs in materials sciences and electrical engineering, software and electrical engineers for manufacturing, as well as print technicians and factory machine operators. As one commentator put it, "It's not like there's a specific type of person or function missing. It's across the board."

The third major industrial policy action out of D.C. is the poorly-named Inflation Reduction Act (IRA), which was also passed in August, but this time on a strictly partisan basis. It includes grants, loans and tax credits tallying $400 billion over the next decade, with the aim of turbo-charging energy capex spending, primarily for green technologies. Daniel Yergin has argued the legislation should really have been called the Industrial Policy Act or Chinese Competition Act. Moreover, regarding the balance between state and market, he emphasizes the pendulum has unambiguously swung toward the former.

Figure 5: IRA to Boost U.S. Energy Investment (USD bn)
Some of the spending is directed at fossil fuels, but the bulk will support green technologies



Source: Bureau of Economic Analysis, Bloomberg, Rhodium Group, Empirical Research Partners

Cold War II: End of the Peace Dividend

> **The technology war is much more important than the trade/economic war, because whoever wins the technology war probably wins the military war.**
>
> **— Ray Dalio, "Principles for Dealing with the Changing World Order," 2021**

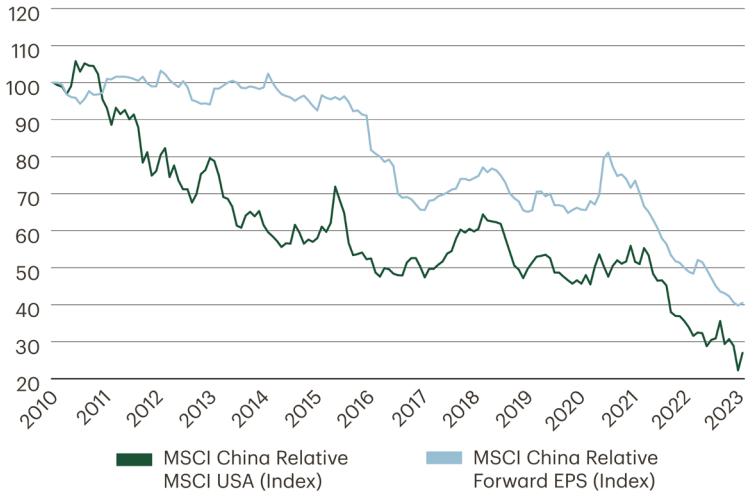
While a majority of U.S. trade does not raise any national security issues, a significant proportion does, and this has numerous implications for investors. First, the two biggest beneficiaries of hyper-globalization have been China and U.S.-based MNCs. Focusing on the former for now, as globalization is unwound, we expect Chinese equities to underperform over the medium- to long-term. In fact, this has already been the case, as China's stock market has taken a beating over the last decade **(Figure 6)**.

Moreover, there have only been two years since 2010 when a majority of CSI 300 companies outperformed the S&P 500 **(Figure 7)**. On average only 33% produced superior returns, which represents a huge hurdle for PMs and analysts.[6] Further, over the last decade, the best performing sectors, relative to their S&P 500 counterparts, have been consumer staples and healthcare, both of which are domestically focused. This is likely to remain the case during the next decade as export-oriented sectors take a hit from deglobalization.

Some commentators take the argument even further, insisting China is uninvestable, especially after October's twentieth Congress. President Xi solidified his position and, compared to five or ten years ago, is placing even more emphasis on national security and self-reliance. However, based on fundamentals such as sustainable FCF and return on invested capital, the CSI 300 looks similar to TPX and SXXE. That is, markets which should typically be underweight relative to the S&P 500, but where analysts are likely to identify a number of attractive global champions and domestic plays.

Figure 6: Chinese Equities Have Underperformed Dramatically Since President Xi's First Term in 2012

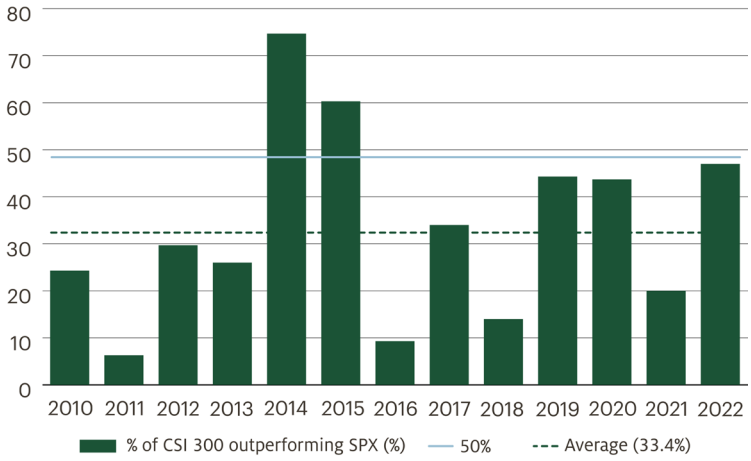
The weakness has been entirely due to inferior earnings growth, leaving valuations largely unchanged. We believe Chinese equities should have a default setting of underweight in global portfolios.



Source: Bloomberg

Figure 7: On Average, Only One-third of Chinese Equities Have Outperformed the S&P 500

And we see no reason why this situation should improve over the next decade



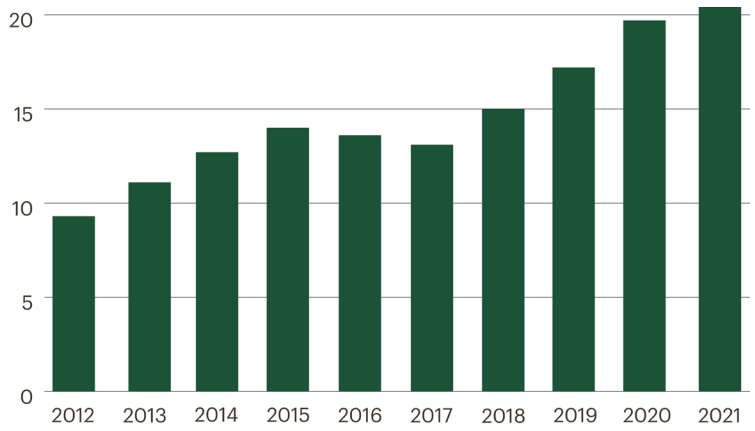
Source: Bloomberg

[6] The corresponding average vs MXWO is not much better at 36%.

"Our Fundamental Problem is that Our Number One Customer is Our Number One Competitor"[7]

Figure 8: Share (%) of U.S. Semiconductor Exports Going to China

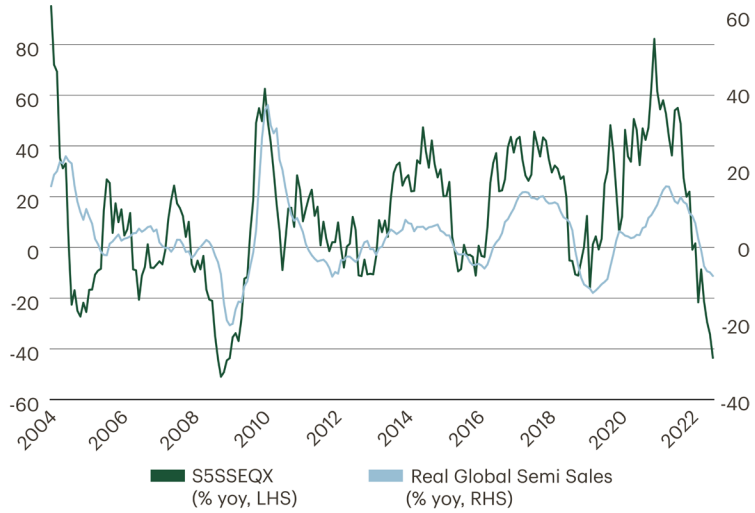
China accounted for 39.6% of growth in U.S. chip exports from 2012-2021



Source: Bloomberg

Figure 9: The U.S. Semiconductor Sector's Performance is 57% Correlated with Global Sales of Chips

The loss of the sector's key growth driver represents a material challenge for future performance



Source: Bloomberg

As mentioned earlier, American-based MNCs have been the second biggest winner from the period of hyper-globalization. However, they are also vulnerable as, in many cases, exports to China have accounted for 40% of their revenue growth over the last decade. This is true for many ATPs, including chips **(Figure 8)**. Further, for major U.S. semiconductor companies, China has represented 28-47% of revenue growth over the last decade. Compulsory decoupling constitutes a major headwind for the sector's medium-term performance, given its high correlation with global sales **(Figure 9)**.

This brings us to the end of Part one of our note on Reinventing Globalization. Part II demonstrates that deglobalization, which implies a secular rise in capex and the labor share, constitutes a major headwind for U.S. margins and FCF. Further, it emphasizes we are not returning to the low inflation, zero real interest rate 2010s. Over the next decade, U.S. companies are expected to face a higher cost of capital, which suggests lower multiples and is likely to prove especially challenging for longer duration assets, such as venture capital and speculative tech companies that are years away from producing FCF on a sustainable basis.

[7]A quote from an unnamed chip executive to a Trump administration official. "Chip War: The Fight for the World's Most Critical Technology," by Chris Miller, Tufts, October 2022.

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