Research Question

U.S.-China conflict, will USMCA be the solution for Chinese electric vehicles in America?

1. Introduction

Chinese EV companies have experienced a rapid and formalized growth in the past 10 years, from the 2012 BYD Qin (秦) to the 2024 Denza and NIO; designs, production, markets, and capitalization of Chinese electric vehicle companies have become quickly institutionalized and entered global markets at a striking pace. MG4 and BYD Atto 3 have maintained Top 5 best-sold EVs in terms of quantity across Europe, with MG4 as the best-selling in the UK. Geely, with the acquisition of Volvo and the joint-venture brand set up with its subsidiary Lynk & Co, have also established its reputation and legitimacy as a major manufacturer in Europe; the company also recently premiered the entry of its newest premium brand Zeekr into the Australian market and European market. Contrasting with the “China Storm” in Europe, however, the North American market has remained relatively silent, except for Mexico where Chinese auto manufacturers have basically conquered the market. The U.S., and Canada, adopting similar strategies, are hard for Chinese electric vehicle companies to enter. Some have suggested that Mexico could be a springboard for these companies to conveniently enter the American and Canadian market under the United States-Mexico-Canada agreement (USMCA), a continuation of previous North-American Free-Trade-Agreement (NAFTA).

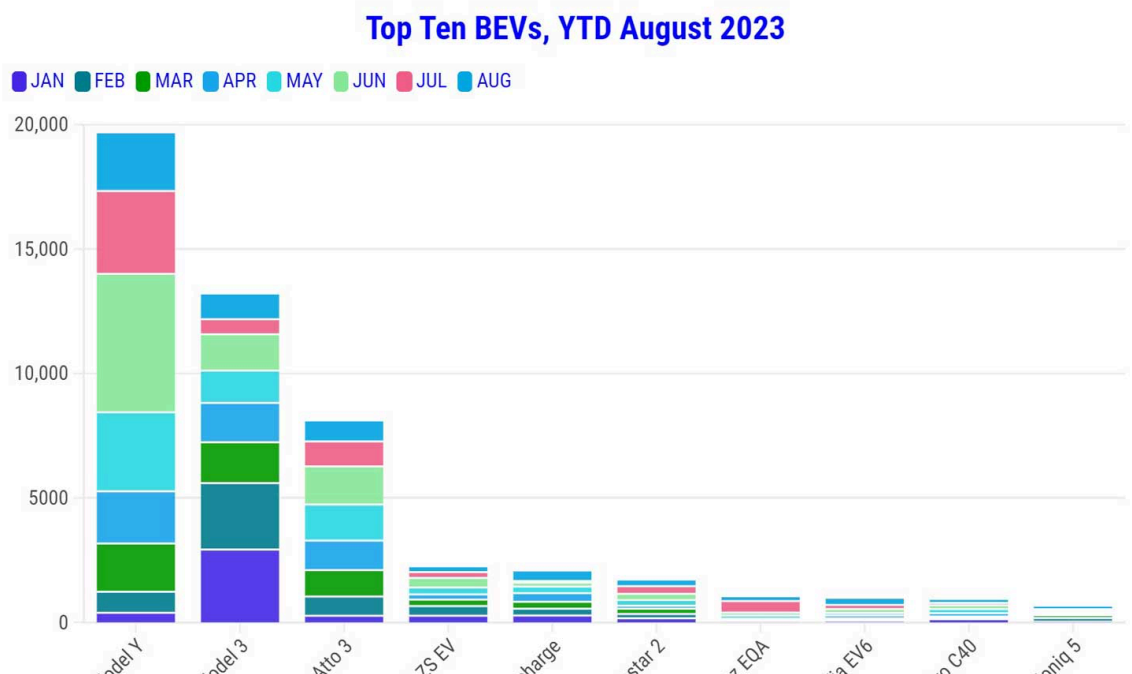
The research assessment will be conducted in the following parts:

Context: U.S.-China geopolitical conflict

Analysis of Market-relevant dynamics

Policy-related examinations

Ultimately, will Mexico be a breakthrough?



2. Context: U.S.-China Relations and Trade Restrictions

Political Context:

The current ongoing U.S.-China geopolitical tensions since 2016, comprising all aspects of political, economical, military, and territorial conflicts, have contributed to a full scale distrust and hostile competition between the United States and People's Republic of China. The focus for this article is particularly regarding technology and critical industries such as EVs.

Starting from the trade war in 2016, to the China initiative in 2018, the EV chapter of inflation reduction act in 2022, and updates on clean vehicle credits in 2023; the difficulty for Chinese EV development and the obstacles faced by Chinese EVs entering the American market has reached an unprecedented level. In the following sections of this research, I will examine the current market dynamics of the U.S. EV market; followed by the policies limiting the sale and research of Chinese EVs; and eventually an estimate on how USMCA could be a breakthrough for Chinese EVCs seeking to enter the American Market.

3. Existing Chinese Manufacturers in Mexico and the U.S.

The largest two private companies with a presence in Mexico and the U.S. are BYD and Volvo/Geely.

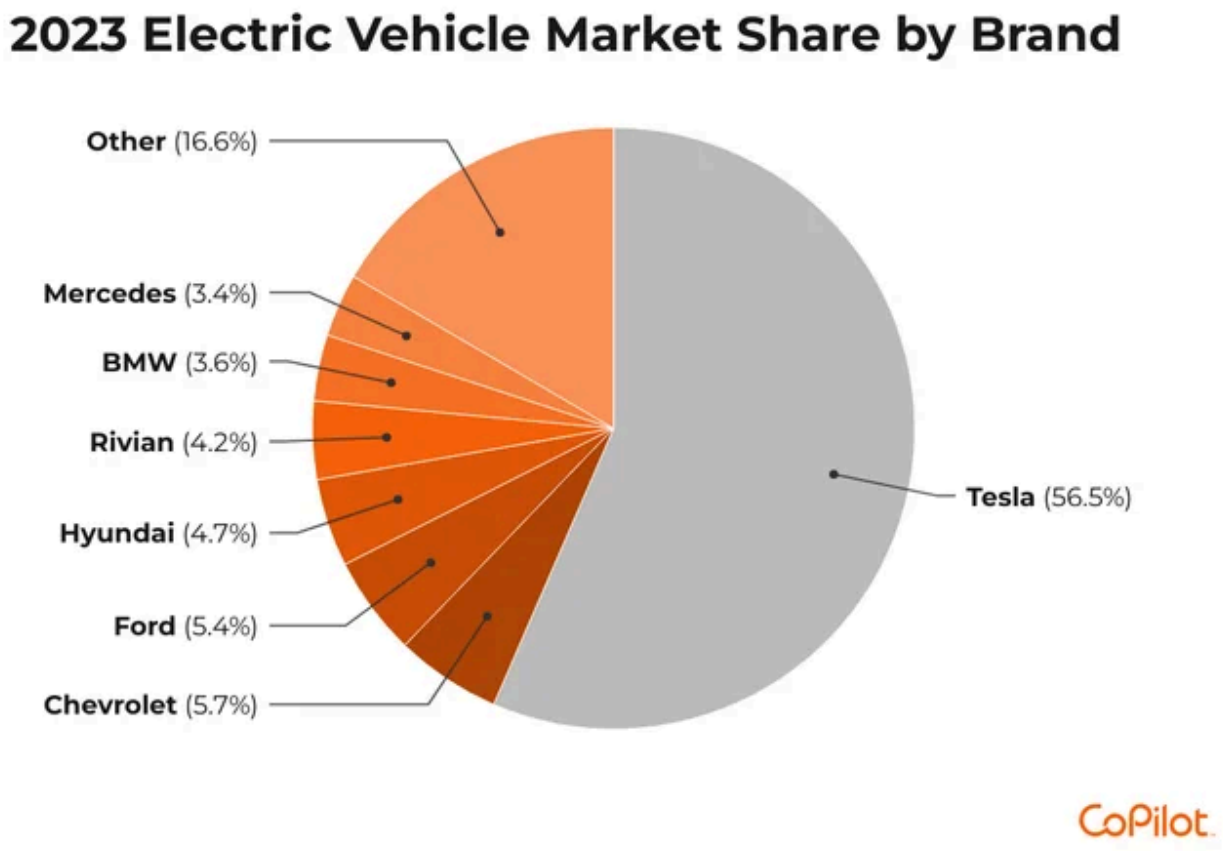
BYD, with 3 million EVs sold last year, is officially the largest EV manufacturer in the world. They account for 21.9% of the global market as of 2024; 29% of global EV battery market.

Geely, with its subsidiary Volvo and Polestar, has established stabilized market presence in the U.S. I consider Geely to be the company with the most market potential in the future 3-5 years given the independence status of Volvo Auto Company and Polestar from its actual parent Zhejiang Geely Group.

I specifically appreciate Geely's strategy of registering the separate company Zeekr technology in Sweden and assigning its EV patents to the Swedish subsidiary; in this way their plants in South Carolina may produce technically Swedish technology-empowered Volvo/Polestar brand EVs without being affected by the entity list as a subsidiary of a European company. Volvo and Geely Auto are independent of each other, with Shufu Li, an individual and the chairman of Geely group as the largest shareholder of Volvo.

There are also Chinese nationally-owned auto companies in Mexico, such as Chery, JAC, they have taken up 10% of the Mexican market. But due to their strong association with the Chinese governments; it's way less likely for them to easily enter the U.S. given their parent might be listed on the entity list.

4. Market Dynamics: Competitive Landscape in North America



Above is a market share of Electric Vehicle Market share by 2023. As compared to the companies listed here, the Chinese EV companies has strong comparative advantage in strong control of the supply chain in home country, low labor costs that gives them the advantage to produce EVs that are powerful, competitive, and well-equipped based on cheaper labor, resources, and the efficient transportation and logistics services in mainland China. Advanced autonomous driving features are also made available based on the dramatic and chaotic driving environment in China.

But will these features, except for autonomous driving, be maintained when they come to Mexico and the U.S.?

Based on the European experience, Zeekr and BYD vehicles are sold 2-3 times more expensive as compared to China due to increased labor costs and tariffs. Even in Mexico, the dolphin mini, most entry model of BYD, sold at $20900, is twice as much as the same model sold in China.

Even if the labor and resource cost in Mexico could be comparable to the similar cost in China; stricter labor rights, higher logistic costs, and training of employees could drive the price up. Not to mention potential policy changes following the 2024 election that make Mexican production a no.

5. Policy-related examinations

Several current U.S. laws and policies impose restrictions on Chinese EV manufacturers and the broader Chinese EV supply chain; here are some examples:

1. Clean Vehicle Credits section of Inflation Reduction Act (IRA) of 2022 (Updated in 2023)

   U.S. Internal Revenue Service. 2023. "Tax Law Changes Related to the Inflation Reduction Act." FS-2023-29. https://www.irs.gov/pub/taxpros/fs-2023-29.pdf (October 5, 2024).

   U.S. Congress. 2021. "H.R.5376 - Inflation Reduction Act of 2022." 117th Congress (2021-2022). https://www.congress.gov/bill/117th-congress/house-bill/5376/text?overview=closed (October 5, 2024).

   The Inflation Reduction Act (IRA) of 2022 made several changes to the tax credits provided to EV consumers; and its 2023 revisions outlined stricter restrictions on the point of assembly, and countries of origin for important components of the EVs. I've outlined the important revisions as found in the 2023 addition:

   Eligibility Rules for the New Clean Vehicle Credit under 30D effective Jan 1, 2023

   a. **Must be manufactured by a qualified manufacturer; Must have final assembly in North America**

   The revisions in 2023, which requires the final assembly in North America, as opposed to the 2022 edition that permits final assembly in countries where the U.S. has a free-trade-agreement with; not only limits Chinese EV companies but also other international automobile companies, with the exception of manufacturers who already have had assembly plants in North America, e.g. Hyundai/Kia Group which have already started the manufacturing of Kia EV9 and Hyundai Ioniq 5 in their Georgia Plant; Mercedes-Benz EQ series in their plants at Alabama; Geely is also able to take advantage of this policy and surpassing other Chinese new EV manufacturers from their Volvo/Polestar assembly plant in South Carolina, which have also initiated the assembly of Volvo EX90, a large EV-SUV that shares the platform with many of Geely's products.

   b. **Critical Mineral and Battery Component Requirements:**

      B.1 Critical Minerals Requirement:

      In General, for a vehicle to meet the critical minerals requirement, a specific percentage of the value of the applicable critical minerals (as defined in section 45X(c)(6)) contained in the vehicle's battery must meet the following conditions:

      - **(i)** Extracted or processed in:

        - **(I)** The United States, or
        - **(II)** A country with which the United States has a free trade agreement in effect, or
    - **(ii)** Recycled in North America.

This percentage must be equal to or greater than the applicable percentage, as certified by the qualified manufacturer in the form prescribed by the Secretary.

The applicable percentage for the critical minerals requirement is as follows:

- **(i)** 40% for vehicles placed in service after the proposed guidance described in paragraph (3)(B) is issued and before January 1, 2024.
- **(ii)** 50% for vehicles placed in service during calendar year 2024.
- **(iii)** 60% for vehicles placed in service during calendar year 2025.
- **(iv)** 70% for vehicles placed in service during calendar year 2026.
- **(v)** 80% for vehicles placed in service after December 31, 2026.

B.2 Battery Components Requirement:

For a vehicle to meet the battery components requirement, a specific percentage of the value of the battery components must be manufactured or assembled in North America. This percentage must be equal to or greater than the applicable percentage, as certified by the qualified manufacturer in the form prescribed by the Secretary.

The applicable percentage for the battery components requirement is as follows:

(i) 50% for vehicles placed in service after the proposed guidance described in paragraph (3)(B) is issued and before January 1, 2024.

(ii) 60% for vehicles placed in service during calendar year 2024 or 2025.

(iii) 70% for vehicles placed in service during calendar year 2026.

(iv) 80% for vehicles placed in service during calendar year 2027.

(v) 90% for vehicles placed in service during calendar year 2028.

(vi) 100% for vehicles placed in service after December 31, 2028.

Together, these two guidelines from the IRA severely restrict Chinese EV companies and supply chains' expansion in the U.S. The critical mineral

requirement will urge companies to seek replacement of Chinese mineral reserves; an ideal replacement could be Canada: having rich reserves of nickel, cobalt, lithium and other resources. The mineral requirement could also be associated with Uyghur Forced Labor Prevention Act (UFLPA), which forbids the import of resources and goods made in Xinjiang Uyghur Autonomous Region unless the importer can prove that forced labor was not involved. Which could involve long legal processes and costs of investigations that most companies could not endure or afford. Given that Xinjiang is a major production origin of polysilicon used in microchips, solar panels, and EV batteries; the limit on goods and resources produced in Xinjiang also affects the development of Chinese EVs in the U.S..

2. CHIPS and Science Act. U.S. Congress. 2022. "H.R.4346 - CHIPS and Science Act of 2022." 117th Congress (2021-2022).
https://www.congress.gov/bill/117th-congress/house-bill/4346 (October 5, 2024).

The **CHIPS and Science Act**, is a $280 billion initiative aimed at U.S. semiconductor manufacturing and research. While the act primarily focuses on the semiconductor industry, it has significant implications for electric vehicles (EVs), especially regarding supply chains, technology access, and competitiveness.

Most importantly, Companies receiving funding under the CHIPS and Science Act are prohibited from expanding advanced semiconductor production in China for a decade. The restriction would prevent technology funded by the U.S. government to advance Chinese semiconductor sectors.

The act also incentivizes U.S. and international companies to limit the sales and allocations of advanced chips to Chinese companies. The semiconductor technology is crucial to essential features of any EV, like its autonomous driving technology, battery management, vehicle controls, and infotainment system.

This creates extra cost and limited supply for Chinese manufacturers. Of course the automobile companies may seek for alternatives; but since most of the most advanced companies in semiconductor technology receive U.S. funding or themselves being a integral part of U.S. global technology supply chain; Chinese companies could only turn to less advanced companies for technology solutions while also facing gaps in supplies – delaying the manufacturing and sales of their electric vehicles, which also means deficiencies in market confidence and consumer confidence – in the end less money for necessary development.

3. Executive Order 14032 (Addressing the Threat from Securities Investments that Finance Certain Companies of the People's Republic of China)

This Executive Order restricts investments in Chinese companies with connections to China's military or surveillance sectors. Several Chinese companies in the EV supply chain have been flagged under these rules, effectively limiting U.S. investments in these firms. Restrictions like

these can hinder capital flows to companies like BYD or NIO if they are perceived to be linked to Chinese state interests.

Details of the executive order are attached as follows:

The White House. 2021. "Executive Order on Addressing the Threat from Securities Investments that Finance Certain Companies of the People's Republic of China." June 3, 2021. https://www.whitehouse.gov/briefing-room/presidential-actions/2021/06/03/executive-order-on-addressing-the-threat-from-securities-investments-that-finance-certain-companies-of-the-peoples-republic-of-china/ (October 5, 2024).

(a) The following activities by a United States person are prohibited:

- The purchase or sale of:
    - Any **publicly traded securities**, or
    - Any publicly traded securities that are **derivatives** of such securities or designed to provide investment exposure to such securities, of:
        - Any person **listed in the Annex** to this order, or
        - Any person **determined by the Secretary of the Treasury**, in consultation with the Secretary of State, and, as deemed appropriate, the Secretary of Defense, who:
            - **(i)** Operates or has operated in the **defense and related materiel sector** or the **surveillance technology sector** of the economy of the People's Republic of China (PRC), or
            - **(ii)** Owns or controls, or is owned or controlled by, directly or indirectly:
                - A person who operates or has operated in any sector described in subsection (a)(i), or
                - A person who is listed in the Annex to this order, or
                - A person who has otherwise been determined to be subject to the prohibitions in subsection (a) of this section.

Notable companies as found on the Annex include:

All 3 China major mobile carriers: China mobile, China telecom, and China Unicom; which provides communication solutions for most of China's EV companies, especially when it comes to 5G technologies and V2X features.

Hangzhou HKVision, a security footage solution company that many Chinese EV companies corporates with for the cameras on their vehicles.

Huawei: Not only communication solutions, but also smart-driving technologies.

This does not only limit the implementation of these companies' technology and solution on the electric vehicles, and at the same time hinders the development of these companies' technology and research – given limits in funding and limits in human interactions, experts and professionals who could interact with identified Chinese entities, I'll talk more about this in the following "China Initiative"

4. U.S. Department of Justice. 2022. "Information about the Department of Justice's China Initiative and a Compilation of China-Related Prosecutions Since 2018." https://www.justice.gov/archives/nsd/information-about-department-justice-s-china-initiative-and-compilation-china-related (October 5, 2024). AKA "China Initiative"

The **China Initiative**, launched by the Trump administration in 2018, was primarily a Department of Justice (DOJ) program aimed at countering perceived threats of economic espionage, intellectual property theft, and technology transfer from China to the U.S.

While it was not directly targeting China's electric vehicle (EV) development, it had significant indirect implications for China's EV industry, as it focused broadly on limiting the flow of advanced technologies and safeguarding American innovation. Here are some of the key restrictions and effects:

Focus on Intellectual Property (IP) Theft and Technology Transfer:

The China Initiative targeted economic espionage by prosecuting individuals or entities linked to intellectual property theft, including Chinese companies, academics, and researchers. The automotive sector, including EV technology, was one of the sectors where the U.S. was concerned about intellectual property theft.

Several high-profile cases involved the alleged theft of trade secrets related to battery technology, electric motors, and other automotive innovations. Such actions created an environment in which collaboration between American research institutions or companies and Chinese counterparts was scrutinized or restricted.

Restriction on Research Collaborations:

The Initiative increased restrictions over collaborations between U.S. universities and Chinese researchers, especially those suspected of having ties to Chinese state funded education and industrial programs. Since many EV-related innovations—like battery chemistry improvements and new manufacturing techniques—are developed through joint research, these collaborations were heavily impacted.

The increased scrutiny led to reduced research partnerships and reluctance from U.S. universities and private research institutions to engage in projects receiving partial or complete funding from China, delaying advancements in technologies that could be beneficial to the EV industry in both countries.

Export Controls and Entity List Restrictions:

Companies and institutions added to the Entity List (which includes the “annex” found above), are forbidden to access U.S. software, hardware, and semiconductor technologies.

The important distinction here would be that, for battery/mineral restrictions; Chinese EV companies and the supply chain could always establish alternatives in countries that have free-trade agreements with the U.S. For example it would be easy to find replacement of basically every necessary minerals for producing EV in Canada; Lithium could also be found in Mexico and get production done at a labor cost lower than trained skilled labor in Coastal provinces of China. but the ultimate restrictions on technological flows and hardware bans – the fundamental and necessary component of enabling technological development, severely restricts the pace and scope of China’s research. Indeed, the country has a large amount of talents in the STEM sector and group of most innovated companies; but their research would reach certain climax without outside interactions and cooperations, even if China could make a technological breakthrough, patent conflicts and banning on Chinese technologies would ultimately limit its production and sales in few countries (take the case of C919, with its performance roughly in between of a A320CEO/737NG and a A320NEO/737 Max, due to lack of Airworthiness Certificates its operation could only be done in Chinese mainland).

Other than direct controls of goods and services with Chinese origin, two institutions exist that limits Chinese companies’ presence in the U.S. market, and they are the Committee of Foreign Investments in the United States (CFIUS) and U.S. Department of Commerce's Bureau of Industry and Security (BIS).

CFIUS reviews foreign investment for national security risks; and BIS imposes restrictions on exports to protect national security and human rights, and to support foreign policy interests. They are the acting authorities that enacts the restrictions listed above for Chinese companies.

An example of how BIS could work in the case of Chinese EVs could be the surveillance technology and data security essential to the operation of a EV. New electric vehicles, for the sake of safe autonomous driving, have multiple interior cameras, radars, and microphones to collectively detect the motion and surroundings of occupants in-car and environments on the road and surrounding buildings. Where will these data be kept in China? Will companies use these data for analytics and even military purposes? Previous case of Tesla in-car footages leak and restrictions on the entry of Tesla vehicles into governmental and military facilities of China (which have been eased following Elon Musk’s visit to China) both serve as proofs of the personal and national security risk brought by electric vehicles. For example a Zeekr purchased in Mexico running on Interstate 5 in Oceanside, California, would capture footage, activities, and vehicles of the U.S. military base there while passing through. Similar security risks resulted in the controversies surrounding TikTok, and is likely to bother Chinese electric vehicle companies.

6. Competitive dynamics in 3-5 Years

Technically, for all vehicles satisfying Regional Value Content (RVC) above 75%, they could be exported to the U.S. and Canada under NAFTA and USMCA. But this is not to say that they would be automatically exempted from further investigation. BIS, for example, could restrict BYD or Geely's Mexican-manufactured vehicles for the sake of national security and human rights – as I briefed on the paragraph above.

A recent feed from Bloomberg that reports BYD's pause in decision to build mega-factory in Mexico until after the election, is consistent with Donald Trump's mentions of 100% tax for Mexico-produced cars and recognized competition from Mexico-Produced Chinese EVs.

This also, however, doesn't mean a Harris winning would guarantee the entry of Chinese electric vehicles into the United States. Even if Chinese companies in Mexico go deep on utilizing all local parts, labors, and resources; the BIS could still be a stop sign for the successful entry of Chinese EVs.

Combining the market dynamics we had in part 3-4 and policy examinations in part 5. It's still pessimistic for Chinese EV's entry in the future 3-5 years, particularly if Trump once again becomes elected to the President and announce stricter limitations on Chinese EV companies and Mexico-produced cars.