

## Analysis of General Motors Company between 2018-2020

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**Abstract:** The auto market had a significant barrier in transforming EVs prior to the pandemic, and the emergence of the pandemic increases the strain on the whole industry due to chip shortage. Additionally, the automotive industry is dealing with more issues than ever before in terms of security and competitive pressures on pricing, quality, execution, and manufacturability of automobiles. These difficulties jeopardize the industry's long-term profitability. By illustrating the external environment of the car industry, General Motors corporation can immediately recognize and respond to the issues it will face. Analyzing the internal environment of General Motors company is of great significance for its competitive advantages, company structure, financial situation. In dealing with external and internal environment analysis, the aforesaid information is combined to make strong recommendations.

### 1. Introduction

In response to the ever-increasing threat posed by climate change, countries are implementing stringent emissions regulations. Tighter regulation threatens the entire auto industry's operations, profit margins, and long-term sustainability. In addition to the regulation, the shortage on supply chain have been plaguing the auto industry since the outbreak of the pandemic. Recently, General Motors, the largest auto manufacturer in U.S., is facing much formidable challenges than the reorganization of 2010. This paper is stimulated by Andrew Cole's fundamental valuation of the General Motors company that he concluded General Motors would be a strong buy for investment purpose amid a pandemic in terms of the applied three different methods of estimating the value of firm [1]. To introduce the industry challenges under the global trends and the outbreak of the pandemic and analyze General Motors business from different perspectives, including competency, operations, pandemic impacted, financial performance, it will determine General Motors' business value as well as come with some recommendation for GM business in terms of the investigation and analysis of this paper.

The paper is organized as follows. The next section provides an overview of General Motors. It introduced the main operations and structure of General Motors. The subsequent section illustrates external environment of auto industry from four aspects, industry overview and analysis, common challenge on traditional auto manufacturer, U.S. auto industry cost structure benchmark, and auto industry landscape. The fourth section analyzes internal environment of General Motors from core competency, distinctive competency, porter's five force of GM, operation perspective, pandemic impacted, and financial performance analysis perspectives. The final section concluded with the recommendations for the company to well-prepared the following threats and cope with more challenges in the future.

### 2. General Motors Overview

General Motors Company (GM or 'the company'), one of the world's leading automakers, was formed in 1908 and became a Delaware corporation in 2009. In terms of General Motors 10K report in 2020, the below information was provided. The initial assets included only Buick. Since the

Titanic, the world's biggest passenger ship, was built by General Motors, the company has quietly evolved, consolidating, or merging Chevrolet, Cadillac, GMC, and Holden, and now delivers services worldwide. After reorganizing its bankruptcy in 2009, GM returned to Wall Street in 2010. Until now, GM operations have previously included GM North America, GM Europe, GM International Operations, GM South America, GM Financial, and Cruise. General Motors' operations, in particular, are separated into three major categories: automotive, finance, and others. In the automotive sector, GM designed, manufactured, assembled, and sold cars, trucks, and crossovers, as well as parts and accessories, including a full range of models under GM's brands, including electric cars, mini cars, heavy-duty full-size trucks, compact cars, and convertibles, in over 120 countries and regions in 2014. GM's present markets include the United States and other nations in North America, China and other countries in Asia, the Pacific, the Middle East, and Africa, Brazil and other countries in South America, and Europe. GMAC founded in 1919 is GM's principal business unit for its finance and insurance industry. Its core business is global auto loans. In addition, the firm provides insurance to dealers and consumers, as well as mortgage banking, offshore finance, and investment services in over 40 countries across the world. GM Houston is responsible for various goods, primarily data processing by Electronic Data Systems, telecommunications services, and the armaments business. GM's main arms business as a major US arms dealer and defense contractor is the development of missiles and offensive weapons, such as warships, nuclear submarines, tanks, and armored vehicles.

General Motors is partitioned into four major business segments: automotive, which includes GM North America (GMNA), GM International (GMI), corporate, and cruise. GMNA is meeting consumer demand in North America by selling automobiles under the Buick, Cadillac, Chevrolet, and GMC brands. GMI is in charge of fulfilling market preferences outside of North America, with the majority of sales going to Buick, Cadillac, Chevrolet, GMC, and Holden. GM, in particular, has committed a significant amount of ownership in Chinese firms through joint ventures, including Baojun, Buick, Cadillac, Chevrolet, Jiefang, and Wuling. Cruise is in charge of the development and commercialization of self-driving automobiles and autonomous driving technology.

### **3. External Environment of Auto Industry**

#### **3.1 Industry overview and analysis**

In the twentieth century, the United States led the global automobile production market, which was subsequently surpassed by Japan. Nonetheless, the United States was the largest auto market at the time, and the majority of automobiles manufactured elsewhere, including Japan, were eventually sold into the United States. However, in recent years, the quick development and advancement of China's economy has resulted in the rapid increase of its auto sales and production, prompting many global automakers to reconsider their market strategies and examine where vehicles are manufactured and the accompanying costs. General Motors is a company that works in automotive industry. The industry is in the declining stage of its life cycle, yet the global auto industry is constantly expanding, and its production is one of the largest industries in the world [2]. In the five years leading up to 2021, the automotive manufacturing sector has had a rocky journey. For most of that time, the sector as a whole benefited from an economic recovery. Vehicle sales reflect customer preferences, prompting manufacturers to modify their operations would be able to meet market demand. As a result, the entire industry's market development was expedited. As the average annual price of fuel and crude oil has fluctuated wildly throughout the last five years and yet is still well below \$70 per barrel and well below the all-time high in 2019 of \$109.45 per barrel, consumers have shifted their demand from compact cars and sedans to trucks and sport utility vehicles. The average annual OPEC crude oil price from 1960 to 2021 in U.S. dollars per barrel, providing by OPEC publishing on Statista, is shown in Figure 1.

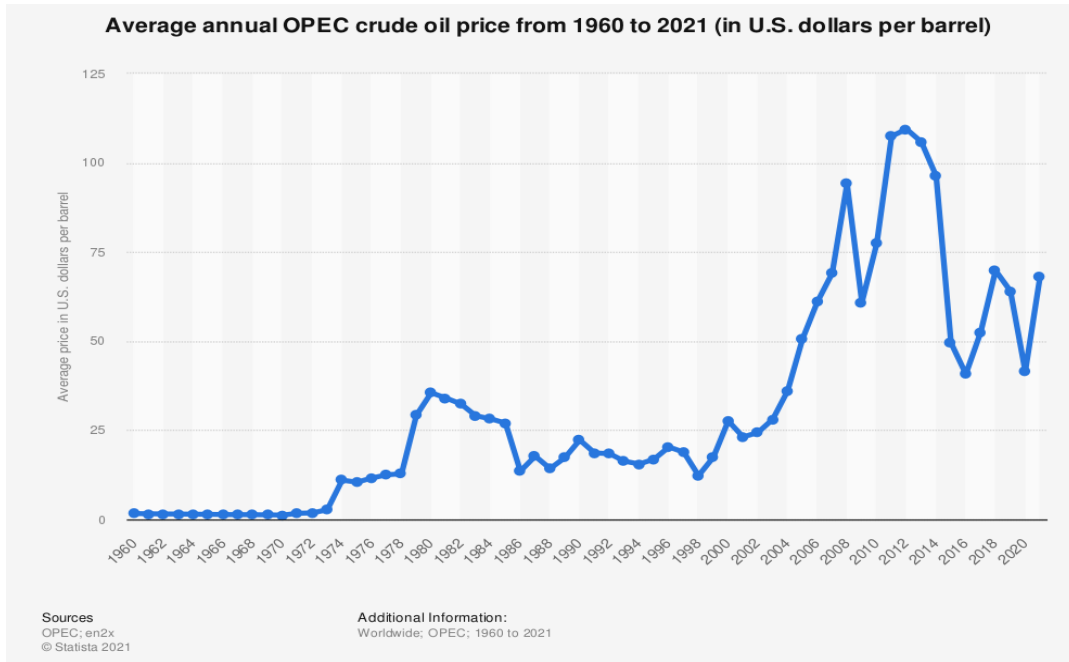


Figure 1. Average annual OPEC crude oil price from 1960 to 2021 in U.S. dollars per barrel

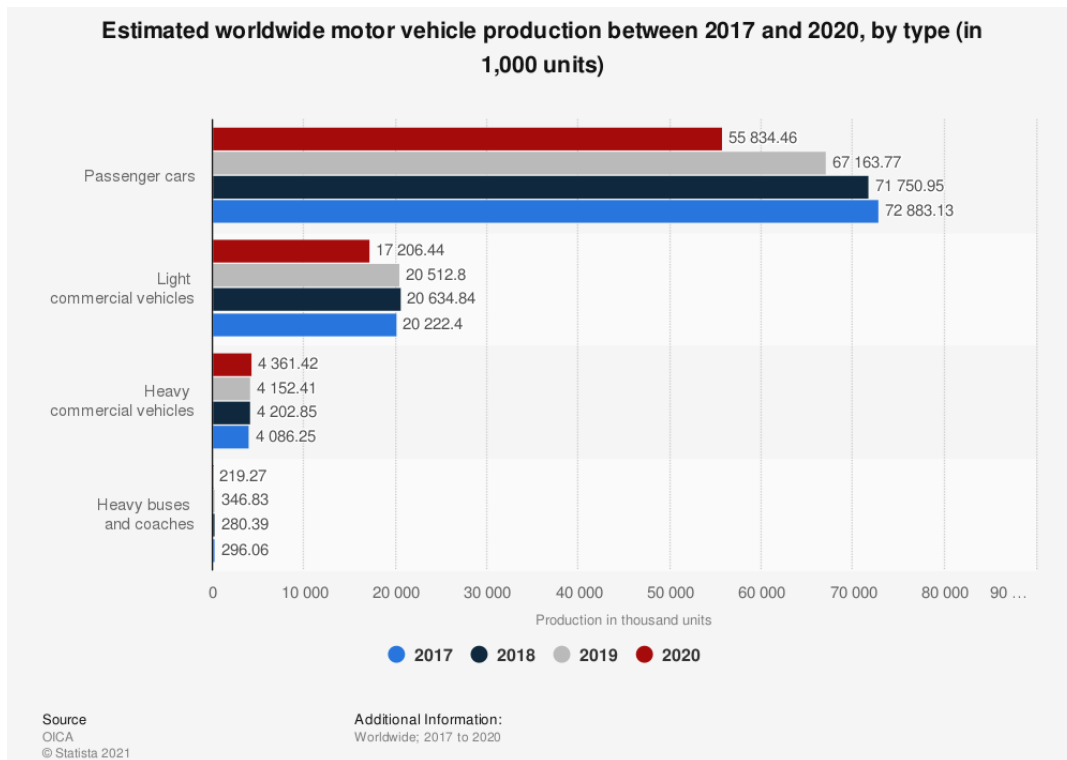


Figure 2. The estimated worldwide motor vehicle production between 2017 and 2020

As the book the U.S. automobile manufacturing industry predicted, the growing electronics consumption have been driving the auto industry of electronic technology development with more and more electronics integrating into the system of automobiles and transportation facilities [3]. The auto industry, as a critical economic benchmark, has been on the verge of new technology and innovation. Many nations are already tightening regulations on car emissions, such as establishing strict emission rules and laws, and publishing preferential policies to encourage and stimulate the sale of new energy vehicles, spurred on by global initiatives such as the Paris Agreement. The entire market has been driven by rising demand for commercial vehicles from the logistics and e-commerce sectors. For example, heavy commercial vehicle production was unaffected by the COVID-19

pandemic, rising 5% in 2020 from the previous three years. Moreover, in addition to impact of shifting consumer preference and regulatory restrictions, the COVID-19 pandemic hastened the industry's negative path in 2020. The global sales dropped by 13.96% to around 78.6 million units in 2020. Motor vehicle production, which includes passenger cars, light commercial vehicles, and heavy buses and coaches, has decreased to some extent in 2020. The estimated worldwide motor vehicle production between 2017 and 2020, by type (in 1,000 units), providing by OICA publishing on Statista, is shown in Figure 2. The all industry sales from 2018 to 2020 in thousands, the data based on 2020 General Motors 10K report, is shown in Figure 3.

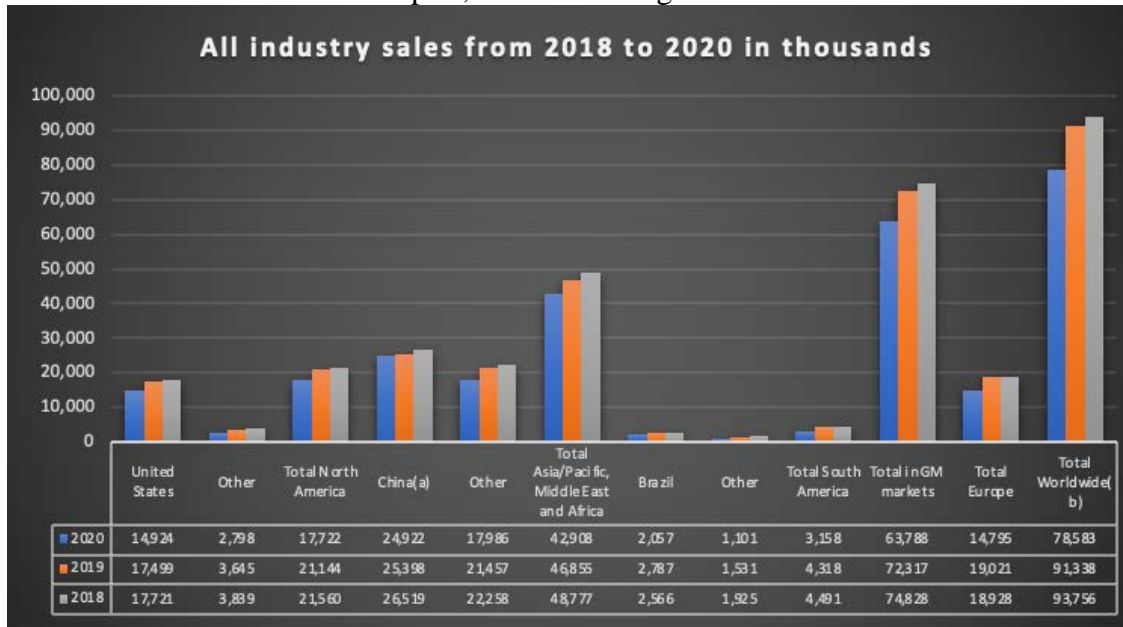


Figure 3. All industry sales from 2018 to 2020 in thousands

### 3.2 Common challenge on traditional auto manufacturer

The auto industry is going through a particularly tough period. The historic and conventional business model in the automotive industry is being shaken by technological innovation, market developments, and evolving customer preferences. To keep their original market share purpose, automakers input the development and manufacturing costs on traditional internal combustion engine (ICE) vehicles, and also must invest money in research and development on new, non-traditional players in the automotive industry, such as electric vehicles (EVs), which is one of the new priority industries based on global trends. The government and customers are placing more emphasis on the automobile sector to respond to the environmental crisis of improving the environmental sustainability of vehicle manufacturing and use. The auto sector has made a multitude of commitments to tackle climate change and the emissions challenge, including vows to limit carbon emissions and promote electric vehicles with zero emissions.

The auto manufactures have also undertaken on more technological difficulties and transitions. Almost all vehicles have been powered by the same combination of internal combustion engines and mechanical drives for over a century. Electric vehicles, on the other hand, are extremely reliant on a different approach that comprises of a massive battery and an electric motor to drive the wheels. The manufacturer had to master the transformation of the car's fundamental powertrain for this sort of vehicle. Many firms are still in the process of transforming and maturing their technologies. They have made significant investments in the investigation and development of this new sector, while the technology is still in its infancy.

### 3.3 US Auto Industry Cost Structure Benchmark in 2020

Purchases (80.2%), Wages (7.4%), Depreciation (2.3%), Profit (0.6%), Utilities (0.3%), Rent (0.1%), and other costs (9.1%) [2].

### 3.4 Auto Industry Landscape

This section reviewed the level of U.S. auto industry competitive landscape across several dimensions, including market share concentration, basis of competition, barriers to entry, and industry globalization. The industry is judged to have a medium level of market share concentration, with the Big Three in the car industry accounting for more than 43 percent of market share. The industry considered to have a medium degree of competitiveness, and this trend is expected to continue. The industry's operators contend with internal rivalry, such as pricing, fuel efficiency, utility, and so on, as well as external competition, such as other manufacturing industries. The barriers to entry in this business are medium and consistent, making it even more difficult for new entrants to break into due to capital requirements and periodic technology advancements. This industry is highly globalized, and the tendency is forecast to keep. The shown chart of industry trade balance visualized shows high level of exports [2].

Five major companies in U.S auto industry from 2020, including General Motors (17.30%), Toyota (14.41%), Ford (13.87%), Chrysler (12.41%), Honda (9.12%), and others (32.89%). The United States Auto industry market share in 2020 is shown in Figure 4.

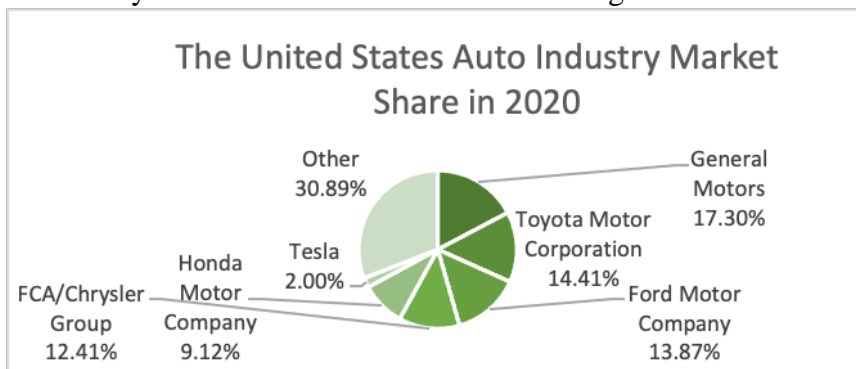


Figure 4. The United States auto industry market share in 2020

## 4. Internal Environment of General Motors

### 4.1 Core Competency

General Motors' core competency is to its ability to produce high-quality vehicles at the lowest possible cost, therefore offering customers with good value for money. The majority of their vehicle sales revenue comes from the final assembly of automobiles and SUVs. Its primary competencies are leadership, technology, product development, and large-scale operations. General Motors is committed to an all-electric future and is investing in many technologies to develop and improve vehicle electrification, particularly in technology and product development. As a result, its key competencies are linked to its capacity and resources.

### 4.2 Distinctive competency

The distinctive competency of General Motors consists of several characteristics. First, General Motors is involved in a variety of businesses; GM Financial is their second big business segment, which supports its captive finance, arm, and the combination of these businesses allows the company to have and spend more cash on business transformation than many of its competitors can. GM is one of the top manufacturers in the world at executing OEM technology in the entire disruptive technology domain, which creates another key distinctive competency for its brand. Third, GM's huge network of dealerships contributes to the sale, distribution, and servicing of its products around the clock, which is critical to the company's performance in the market with a decent vehicle sales market share. Fourth, GM is actively developing its own cutting-edge autonomous driving technology and is a market leader with substantial worldwide real-world expertise in offering connected services and sophisticated safety features. GM, in particular, provides OnStar, which provides retail and fleet clients with safety and security services. Super Cruise, the industry's

firsthand-free driver assistance function for of equipping roads, is one of the results of autonomous driving technology. Furthermore, according to Ford and General Motors corporate sustainability reports: a critical discourse analysis, the author Reyes pointed out sustainable development is one of business models General Motors have been incorporating. General Motors clearly recognized that the transforming to environmental and social protection would become a factor to restrict economic growth, the company is taking advantage of this business model to develop the financial bottom line and financial performance while eliminate environmental externalities and satisfy stakeholders [4]. Finally, the GM organization utilizes partner ventures to enter the worldwide market and increase sales and income. As a result of these various competencies, General Motors has gained a competitive advantage that has resulted in a long-term brand name and a market leader position.

### **4.3 Porter's Five Forces of General Motors**

Porter's five forces model identifies and evaluates organizational structure and strategy based on five competing factors. To use this model, General Motors demonstrates its weaknesses and strengths, eventually guiding its business plan to increase long-term profitability and competitive advantage.

#### **4.3.1 Threat of New Entry**

GM bears a weak threat from a new entrant into the automotive manufacturing business. The entire industry has a high capital requirement for establishing advanced manufacturing facilities and supporting them with a strong supply chain, along with rapid changes in technology to meet market demand and customer preferences, thus the high threshold creates a low level of threat from new entrants. GM, a capital-intensive corporation with a century of history, filed for chapter 11 bankruptcy in 2009, reformed, and returned to profitability later that year. Aside from finance, the new entrant needs mature technology and experienced workforce. Because of its scale, scope, and reputation, the consumer has more confidence in the safety, dependability, and durability of GM products, making it difficult for new entry to bargain price. Furthermore, new entrant profitability and operation simply impacted by vastly higher operating cost, as a result of comprehensive laws, regulations, and policies, such as those related to vehicle emissions, fuel economy standards and greenhouse gas emissions. Because GM has amassed investment and has been developing long-term favorable relationships of collaboration with partners, the operational costs will be reduced to some extent. As a result, financial constraints, government policies, and scale economics all act as roadblocks to prospective entrants.

#### **4.3.2 Power of suppliers**

GM has a low level of supplier power that mostly controls bargaining. The automotive sector has numerous suppliers, some of which are significant, but the majority of them are pretty small. According to the automotive news list for 2019, five of the global top suppliers are Robert Bosch, Denso Corp., Magna International, Continental, and ZF Friedrichshafen. GM purchases a significant number of raw materials, parts, suppliers, energy, freight, transportation and other services from numerous suppliers to manufacture its products and hold immense clout that contributing to more than 17% of U.S. auto industry market share and around 9% of the worldwide market share in 2020. Hence, raw materials are commonly accessible and moving from one supplier to another is not difficult for them. The GM geographic vehicles sales market share between 2018 and 2020 is shown in Figure 5.

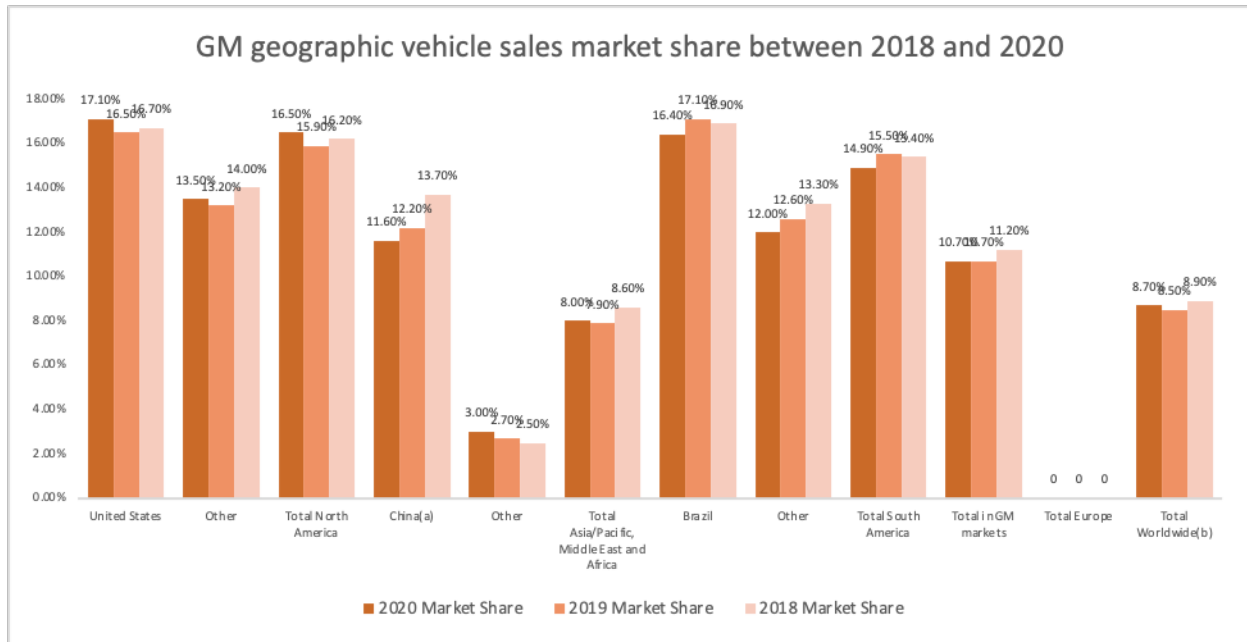


Figure 5. GM geographic vehicles sales market share between 2018 and 2020

The outbreak of pandemic compound suppliers confronts supply chain issues and chips shortages. However, according to worldwide trends, the development of EVs is the new business strategy and industry transformation. Suppliers have contemplated major investments in electrification and autonomous driving, which will result in a stronger position in the development of EVs. Moving forward, with the increased demand for electric vehicles, GM's long-term strategy includes the development of EVs. If only a few of the largest suppliers achieve mature technology on EV-related original-equipment parts, suppliers will be able to take control of GM's bargaining force.

#### 4.3.3 Power of buyers

The buyer group wields modest authority, which has an impact on GM's revenue and profits to some extent. The auto business is so competitive that purchasers can immediately shift to another automobile manufacturer if GM's goods and pricing are not appealing in the overall market. Also, if the price of oil rises in the future, purchasers will consider alternatives like as public transit, bicycles, and so on. Even though the majority of customers are individuals purchasing a single vehicle, corporations or governments typically purchase big fleets and may barter for cheaper pricing. As a result, both small and big consumers may simply convert to a new brand and transferring to other brands or modes of transportation does not impose major expenditures for the buyer. General Motors might deal with buyers' medium bargaining strength if it focused on creating customer loyalty via design, quality, and competitive price. The rivalry in the vehicle sector is growing increasingly strong, and the shifting consumption pattern increases customers' negotiating power.

#### 4.3.4 Threat of Substitutes

General Motors faces little competition from substitutes. Bicycles, motorbikes, trains, buses, and airplanes are just a few examples of alternative modes of transportation. On the one hand, the risk of alternatives exists because rising fuel prices will force purchasers to consider public transportation, and the threat will be heightened if manufacturers are unable to create more cost-effective and efficient goods. On the other hand, practically all replacements are less expensive and, in some cases, more environmentally beneficial. However, these sorts of alternatives seldom provide the same level of convenience as a vehicle. Electric vehicles are the industry's next frontier. GM has invested a significant amount of money in research and development. The biggest advantage of EVs is that they are environmentally benign and merely utilize power at a low cost. In the foreseeable future, GM-developed EVs will lessen the threat of alternatives even further.



### 4.3.5 Competitive Rivalry

General Motors is up against a lot of competition. The automobile business is large and sophisticated. GM's opponents include not only conventional operating patterns such as BYD, FCA US, Daimler, Toyota Motors, and others, but also innovative patterns such as Tesla, Ford, and others for manufacturing and creating electronic vehicles and autonomous vehicles. The size of rivals varies, but they often fight for distinct market categories and strive for customer loyalty to their brand. In a nutshell, under these conditions, GM faces a very competitive automobile market.

### 4.4 Operations perspective

GM assesses operations based on five variables: volume, mix, pricing, cost, and others. Due to the nature of GM company, material costs account for about two-thirds of the overall cost, making it a critical component of Automotive and another cost of sales, while the remainder of the total cost includes labor costs, depreciation and amortization, freights, and other expenses. According to GM 10K report, In the last three years, GM has seen a decrease in total net sales and revenue from Automotive and GM Financial, while Cruise is the only division that has had an increase in total net sales and revenue in 2020. At the end of the fiscal year on December 31, 2020, GM generated a large number of positive expenses, which decreased the cost of automobile and other sales charges in 2020. Automotive and other selling, general and administrative expenses were dropped as a result of the greatest impact of COVID-19 pandemic. In 2020, a rising in non-service pension income mainly led to interest income and other non-operating income, net increasing. Changes in valuation allowance, a rise in pre-tax income, and the lack of U.S. tax benefits from international activities all contribute to an increase in income tax burden.

### 4.5 Pandemic impacted

Since the pandemic's outbreak, supply shortages have been commonplace occurrences. During this phase, supply chains were upset, and there was public concern about a scarcity of goods such as toilet paper, paper towels, masks, hand sanitizer, and so on. These situations have improved, whereas shortages in other fields have not. Semiconductor is one of the items that have had a global influence on a wide range of products and industries attributable to supply chain shortages.

The pandemic boosted the demand of electronic device, such as iPad, PlayStation, in which semiconductors plays a vital role. Due to the lockdown, the manufacturer was unable to open their product line. To balance the rising demands on electronic device, the manufacturer concentrated more on semiconductors used in consumer electronics in order to meet the unforeseen, pandemic-driven demand. As a result, assembly lines cannot be simpler or quickly restored to the level of car chip production, resulting in a semiconductor shortage.

Semiconductor is vital components in automotive, and its scarcity has impacted all areas of GM business. The most visible result is a shortage of new cars in great demand. For example, in 2020, GMNA had dropped 35.6% and GMI had declined 33.4 % in the wholesale vehicle sales. The wholesale vehicle sales in thousands is shown in Figure 6.

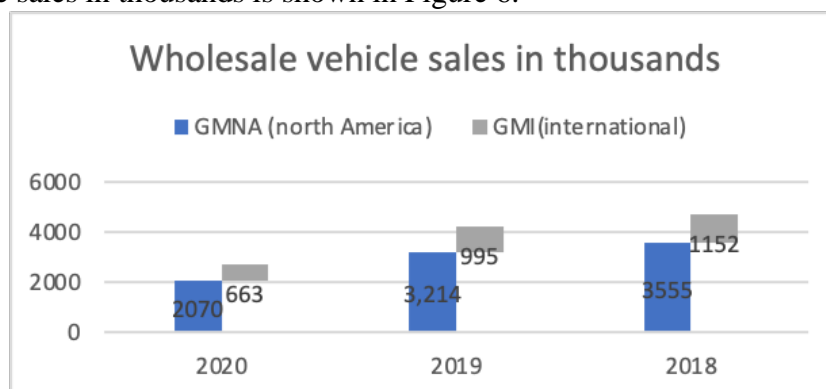


Figure 6. Wholesale vehicle sales in thousands



The manufacturer has dealt with part of the sting by raising the car price for passing some of the pain on to car buyers. Vehicle chips are in short supply regardless of manufacturer or model. To respond to car shortages, the company has to prioritize which vehicles they can build and what is the best approach. Further, because of scarcity on new car, customers have had to shift their attention to used cars, which has imbalanced the used car market and exaggerated used car prices.

The majority of GM's revenue comes from car sales, making it one of the world's top automakers. In specifically, according to its 2020 consolidated income statement, GM generates \$108,673 million out of a total of \$122,485 million in the 2020 fiscal year. To overcome with the shortage, GM has reallocated available chips to higher-margin cars with popular models – huge SUVs and trucks – while slashing production on other models, most small SUVs and sedans. According to GM Will Co-Develop Chips with Several Producers to Secure Supply, David Welch and Ed Ludlow revealed that lacking chips led to a decline in production, therefore GM has a substantial declines in its third-quarter sales of 2021, was about 33%, and profit were almost half what they were a year ago [5].

#### **4.6 Financial Performance Analysis**

Overall, General Motors' profitability is among the best to most competitors over the past three years. Total available liquidity includes cash, cash equivalents, marketable debt securities, and funds available under credit facilities. The main amount of liquidity was managed by North America. The amount of available liquidity could be affected by seasonal fluctuations and balances held by various business units and subsidiaries worldwide. The cash equivalents and marketable debt securities balances are denominated in dollars and investment in obligations, time deposits, and different securities. Total assets have been increasing during these three years, it raised \$7,157 million from the end of previous fiscal year to \$235,194 million due mainly to an increasing \$9046 million in 2020 marketable debt securities. GM used facilities as collateral to borrow money, which total liability has generally increased over the past three years. Total liabilities amounted to \$185,517 million, an increase of \$3,437 million from the end of the previous fiscal year due mainly to an 10.4% increasing in long-term debt.

Total Net sales and revenue are decreasing a lot over the past three years. Total net sales and revenue amounted to \$122,485 million, including \$108,673 million in automotive and \$13,812 million in GM Financial, a decrease of \$14,752 million from the end of the previous fiscal year. Especially, the negative impact of the auto sales to some extent affected GM Financial operating. The drop in net sales and revenue can be attributed to several factors, such as the shortage of chips leading by the outbreak of pandemic, changing in market demand, including changing by the customers' preference and government regulation.

Net Cash flows from operating activities increased by \$1,649 million in fiscal 2020, due mainly to provision benefit for deferred taxes and low level of changing in other operating assets and liabilities. Net Cash flows from investing activities decreased \$10,927 million in fiscal 2020, attributable primarily to an increase in payments on acquisitions cost of available-for-sale market securities amounting to \$16,204 million, which is fourfold increase from a year earlier, and eight times as many as fiscal 2018. Net cash flows from financing activities increased by \$10,229 in fiscal 2020, while the amount is well lower than the amount in fiscal 2018. The mainly reason is because the only paid \$669 million on dividend, compared with large amount payment \$2,350 and \$ 2,242 million on fiscal 2019 and 2018, despite there is a balance between original maturities greater than three months of proceeds from insurance of debt and payments on debt over past three years. After adding translation adjustments and cash and cash equivalents at beginning of period, cash and cash equivalents as of the fiscal year ended December 31, 2020, stood at \$ 23,117 million, an increase of 174 million over fiscal 2020. Detailed Financial Ratios are shown in Table.1.

Table.1. General Motors Annual Financial Ratios

General Motors, Annual Ratios				
Key Ratios	Unit/Currency	2018	2019	2020
<b>Equity Ratios</b>				
Equity Ratio	%	18.82	20.15	21.12
EPS(Earnings per Share)	\$	5.53	4.57	4.33
Dividend per Share	\$	1.52	1.52	0.38
<b>Profitability Ratios</b>				
Gross Margin	%	9.59	10.18	11.16
Net Profit Margin	%	5.38	4.80	5.10
Operating Margin	%	3.02	3.99	5.42
Return on Equity(ROE)	%	18.88	14.51	12.72
Return on Assets(ROA)	%	3.55	2.92	2.69
<b>Growth Ratios</b>				
Sales Growth	%	1.00	-6.67	-10.75
COGS Growth	%	4.25	-0.07	-0.12
EBITDA Growth	%	-13.42	10.84	0.15
Net Income Growth	%	22.23	-0.17	-0.05
Interest Expense Growth	%	13.91	19.39	40.41
Working Capital Growth	%	110.23	-42.76	14.76
EPS Growth	%	312.69	-17.3	-5.27
<b>Liquidity Ratios</b>				
Current Ratio	Absolute	0.92	0.88	1.01
Quick Ratio	Absolute	0.8	0.76	0.88
Cash Ratio	Absolute	0.35	0.31	0.4
<b>Leverage Ratios</b>				
Debit Ratio	Absolute	0.17	0.14	0.10
Debt to Equity Ratio	Absolute	2.45	2.25	2.21
<b>Efficiency Ratios</b>				
Asset Turnover	Absolute	0.67	0.6018	0.53
Inventory Turnover	Absolute	12.98	12.20	10.55
Receivable Turnover	Absolute	4.74	4.11	3.62
Average Collection Period	Days	28.11	29.93	34.61

## 5. Recommendations

First and foremost, the corporation should expedite its research and development in the EV industry with a well-balanced cash flow in order to gain a market share head start. Growing EV demand is a trend in the future auto market; GM will dominate the industry if they join the market with mature technological skills as soon as feasible. Aside from EVs, electric car charging infrastructures like charging stations, charging piles, and electric vehicle power must also have implementable solutions and technology. The construction of the infrastructures plays a significant role in EVs market. For the time being, EVs, the new rising sector, and facility construction have not kept pace with the advancement. One of the concerns that customers have right now is if it can be recharged as soon as it can be used. In addition to charging, autonomous safety, battery depletion rates, and electric vehicle range are all taken into account. As a result, the development of EVs and their associated benefits as a substantial competitive advantage might attract buyers and improve future automotive sales and income.

Second, the corporation maintains its leadership role in North America and China. GM should retain its strong position in North America and China in order to ensure long-term business growth. Through joint venture entities, GM should promote a strong working relationship with all its partners in terms of maintaining the major overseas automaker by sales in the nascent and growing Chinese market. As a result, it constitutes a significant competitive advantage and contributes to GM's ongoing worldwide market leadership.

Third, SUVs and trucks are GM's most profitable products, despite the fact that this condition is highly unfavorable for the firm; consequently, GM should not be unduly relied on SUVs and trucks for its major sales and revenue. Instead, given the fast changes in consumer and market preferences, GM should be prepared to adapt to the risk of market change. Investing in market research, for

example, might assist GM in studying future consumer preferences so that they can make appropriate plans. Advancing business and cost structure reform, as well as developing a consolidated management platform by cutting fixed costs, might allow companies to adapt swiftly to changes in the market environment.

Moreover, as a result of the COVID-19 pandemic, a lack of semiconductors has had such a significant impact on the automotive market. Since GM has almost no experience with raw material shortages, they do not keep a large amount of inventory in the accounts. When the company runs out of semiconductors, they will be unable to produce the new automobile, which would have a negative impact on its sales and income in 2020 future year. To overcome this scarcity, the company should not only distribute chips, to the most profitable models in order to optimize revenue, but also should seek for new replacement materials to mitigate the impact of the semiconductor shortage. The pandemic also compelled GM to reconsider its short-term strategies for redistributing cash and cash equivalents and liquidating now and in the future. GM heavily invested in available-for-sale marketable securities, as well as acquisitions that increased their marketable debt securities on current assets. While GM should manage their cash flow to select investments that have the best chance of generating profits.

Finally, for the purpose of global consolidated management, GM should promote itself as a workplace of choice in terms of attracting, retain, and develop top talent, including paying workers fairly, creating job opportunities, ensuring safety and well-being, and enhancing a culture of diversity, equity, and inclusion.

## **6. Conclusions**

This paper depicted the influence of COVID-19 on the overall auto industry functioning, notably for General Motors business operation between 2018 and 2020. Year 2020 is a challenging year auto industry that they are confronting issues with respect to fuel economy, gas emissions, security and affordability of the vehicle, as well as the shortage of production due to the supply chain issue and shortage chips. External environment of auto industry visualized the threaten that industry have been facing, which helps to further analyze internal environment of General Motors about its current crisis and forecast future crises under this circumstance. Moving forward, General Motors could be able to prepare to respond flexibly and further enhance the long-term profitability and sustainability.

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