



# The Impact of COVID-19 on Toyota Group Automotive Division and Countermeasures

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**Abstract.** The new coronavirus outbreak has affected production and sales in the automotive industry. The impact on the production and transport of parts has led to ever-lengthening vehicle production lead times, and with rising international oil prices, the automotive industry is experiencing enormous pressure. Under these circumstances, the Toyota Group in Japan has been able to maintain maximum productivity. This article focuses on the impact on the automotive industry in the context of the epidemic situation. In this article, we look at the financial changes of the Toyota Group, which has been the global leader in car sales for two years in a row. Also this article will analysis why this changes happen and which factors cause it.

**Keywords:** Toyota · COVID-19 · Financial change

## 1 Introduction

Since December 2019, as the COVID-19 has ravaged the world. Various industries have been affected to varying degrees, with the automotive industry being hit harder. Everything from the production chain to the selling chain has been severely affected, and Toyota, as the industry leader, has been in the spotlight as we look at its performance in light of this outbreak.

## 2 Background for the Car Making Companies During COVID-19

Since March, the New Crown epidemic has once again struck strongly, disrupting the supply chain of the auto industry in many places, with the auto industry pressing the “pause button” in some areas, halting production and sales, shortening supply and weakening demand, with the development of the auto industry and industrial economy suffering a serious impact.

The entire car market has been plunged into a cold winter and the end-consumer market has shrunk severely. According to the statistics of China Automobile Association,

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from January to March 2020, 3.474 million cars were produced and 3.672 million cars were sold, down 45.2% and 42.4% year-on-year respectively. A comparison of sales in the first quarter of 2019 shows that sales in the first quarter of 2020 were 2.7 million units lower than in the same period of last year, accounting for 10.5% of total sales last year. That means even if the second, third and fourth quarters of 2020 are flat, sales for the year will fall 10%. In February, the Association cut its forecast for sales growth in 2020 to minus 5 per cent, putting the industry on track for a third straight year of contraction. The epidemic has also affected China's electric vehicle market, with sales of electric passenger vehicles falling 76% year-on-year in February, a sign of the pressure on the domestic car market in 2020 [2].

## **2.1 Background for the Influence on Role Materials Production Process During Covid-19**

In Shanghai, more than 100 auto industry chain giants have set up factories, and together with small, medium and micro enterprises, there are as many as 20,000 auto parts companies in Shanghai[1]. Radiation to the Yangtze River Delta region, the Yangtze River Delta region has more than 600 auto parts enterprises above the scale, covering almost all parts of a car production chain.

The top 100 global components companies, such as Bosch, Ampofo, ZF, Schaeffler, Continental, BorgWarner and other foreign parts giants, as well as Kobota, Paulown Technology, Daimei, United Electronics, Junsheng Electronics, Yanfeng Pio, Zeking Electronics, Azure Power and other local Chinese parts suppliers, have almost all set up factories in the Yangtze River Delta region. The shutdown or reduction of production of any one component enterprise, especially those above the scale, coupled with poor logistics and transportation, raw material supply restrictions and other issues, all the pressure will be transmitted to the relevant downstream enterprises across the country.

The most obvious feeling, especially for those involved in automotive electronics, is the substantial increase in workload. On the one hand, one has to keep an eye on all kinds of relevant information and try to ensure that production lines are not interrupted. On the other hand, new solutions have to be found and implemented quickly based on the forecast of material outages. In order to maintain supply, various hardware changes due to chip replacement are constantly occurring, and corresponding software changes are inevitable. As a result, there are multiple suppliers of a single controller and many versions of hardware and software, and the workload of not only the hardware and software developers has increased dramatically, but also that of the test and verification staff has increased several times.

In Japan, the majority of Japanese automotive workers have been “furloughed” this year. On the one hand, the supply chains of Japanese automotive companies have been hit by a shortage of semiconductors and the continuing impact of the epidemic in terms of logistics. Recently, Japanese auto companies have cut production, resulting in a significant reduction in orders from parts companies. According to the Nihon Keizai Shimbun, suppliers of Japanese giants such as Nissan, Toyota and Honda are among the “disaster areas” forced to take leave this month. Japanese automakers tend to notify parts companies of their recent production plans about a month in advance. Parts companies will

use this plan to purchase materials and hire staff. When automakers adjust their production schedules, orders for parts are reduced accordingly. Toyota, for example, revised its production plan for June twice in late May, lowering monthly production from an initial level of about 950,000 units to about 800,000 units. The epidemic in China was relatively well controlled last year, but the epidemic in Southeast Asia, including countries such as Vietnam and Malaysia, is in an upward phase. This has already put some pressure on the Japanese industry chain.

However, for the Japanese automotive industry, the influence of the Southeast Asian countries and China is very different. Shanghai represents the entire Yangtze River Delta economic region. The Yangtze River Delta is one of the world's most important bases for the automotive industry: research and development, parts supply, assembly and the hub function of logistics all take place here. In Changshu, for example, there is Toyota's largest R&D centre in the world, the only one of the world's five overseas R&D centres to have a test track. In the case of Shanghai, the port of Shanghai is now the world's largest port in terms of throughput and its role for global logistics is self-evident. The impact of the epidemic and the prevention and control of the epidemic has put a very high pressure on logistics and even the supply chain. This is why it has come about that most car manufacturers are now giving their employees time off.

## 2.2 Background for Toyota

Toyota has a very popular system called Just in time system (JIT), which means that only when there is actual production demand, the supplier is required to send the required parts to the production line on time and in accordance with the quality, the whole process requires "zero inventory". This system can decrease the cost of production a lot [3].

But during the covid-19, firms with this system will have no storing materials for production. So when their supply chains are broken, they will almost have no ability to produce any more, which leads to the huge decrease on their profits.

## 3 Analysis of the Data from the Real Situation

From the background, people will often have a thought that Toyota, as a car company and the implementer of the JIT system, will be surly negatively affected. Then, this part will use the data from the real world, which is collected from these firms' financial reports, to analyse the real financial situation of Toyota.

### 3.1 The Cases for the Total Amount of Profits of Toyota from 2018 to 2021

From Fig. 1, in these four years from 2018 to 2021, the total amount of profits of Toyota is as follow: 726 billion yen, 753 billion yen, 731 billion yen, 663 billion yen. From 2018 to 2019, the profits for Toyota increases by 3.7%. After, 2019, the profits of the Toyota begins to decrease, which is just relevant to the occurrence of the covid-19. However, in 2020, which is the most serious time for the covid-19 that most of the firms are facing the serious problems from a lot of fields, the total profits of Toyota does not have an obvious change, it only decreases by 2.9% from 2019. As a result during the challenges of covid-19, Toyota does not have a huge decrease in its total profits, not like the most common car companies at that time.

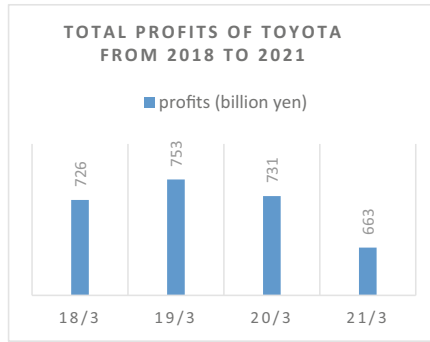


Fig. 1. Total profits of Toyota from 2018 to 2021

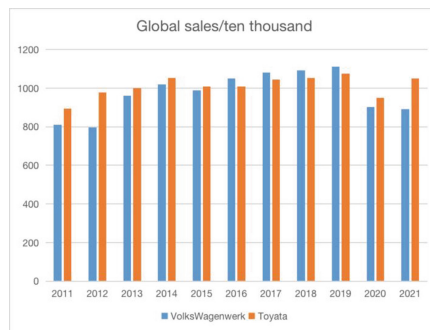


Fig. 2. The brief comparison about the quantity of sales between VolksWagenwerk and Toyota from 2011 to 2021

### 3.2 The Comparison Between the Toyota and VolksWagenwerk During These Time

The automotive supply chain is facing disruption due to COVID-19 and parts shortages. Volkswagen group reported a 4.5% year-on-year drop in global sales in 2021 to 8.9 million vehicles, the lowest in 10 years. The decline was particularly sharp in China, where it fell 14 per cent year on year. The global sales volume of Toyota motor reached 10.5 million units in 2021, up 10.1% year on year, ranking the global sales champion for two consecutive years, far ahead of Volkswagen Group. The gap between Toyota’s and Volkswagen’s annual sales figures is small, but it will be more than a million vehicles in 2021. Many auto companies are affected by the epidemic and parts shortage. The key to success lies in the operation of supply chain in the face of supply chain disruption crisis. The automotive supply chain is facing disruption due to COVID-19 and parts shortages. Volkswagen group reported a 4.5% year-on-year drop in global sales in 2021 to 8.9 million vehicles, the lowest in 10 years. The decline was particularly sharp in China, where it fell 14 per cent year on year. The global sales volume of Toyota motor reached 10.5 million units in 2021, up 10.1% year on year, ranking the global sales champion for two consecutive years, far ahead of Volkswagen Group. The gap between

Toyota's and Volkswagen's annual sales figures is small, but it will be more than a million vehicles in 2021. Many auto companies are affected by the epidemic and parts shortage. The key to success lies in the operation of supply chain in the face of supply chain disruption crisis.

### 3.2.1 The Useful Inventory System of Toyota

Toyota is really a huge business. It has 6 car brands which contain vans, private cars, almost all kinds of cars. Moreover, it has 8 principal subsidiaries and affiliates, some of them is relevant to the car making, like metals division, which can also benefit their car making business, But some of them is completely irrelevant to the car making, like food service. As a result, if there's a market that is not good for the car, Toyota will still not be hurt too much since they can still benefit from their food service or they can just some of their capital of cars to other business. It's very elastic and can help them suitable to different time periods. And that's just why they decide to such a risky work.

Toyota is known around the world for its zero-inventory, streamlined production management system, which pioneered a production model driven by orders and demand. The supply chain management mode of TOYOTA is derived from TOYOTA Production System (TPS), also known as Lean Production (LPS), or just-in-time Production (JIT).

The just-in-time (JIT) inventory system is a management strategy that aligns raw-material orders from suppliers directly with production schedules. Companies employ this inventory strategy to increase efficiency and decrease waste by receiving goods only as they need them for the production process, which reduces inventory costs. Toyota had long realized that the production cycle of critical car parts was too long to cope with devastating shocks such as natural disasters, so it decided to stockpile critical car parts on a regular basis and came up with a "business continuity plan" (BCP), which required suppliers to stockpile chips for Toyota for two to six months.

### 3.2.2 Marketing Channel or Distribution Strategy

*Distribution channels typically see a group of dependent organizations that promote the sleek transfer of a product and repair to customers (users) through the market exchange method.* Toyota's ability on distribution channels has long appeared in China. Toyota in Japan adopts a series distribution system, that is, the distribution network is split into 5 channels in step with the range of product, and every channel operates in numerous corresponding markets. The 5 channels are: Toyota Series Store, very little Toyota Series Store, Toyota curl Store, Toyota Automobile Series Store and Toyota Vision Series Store.

Toyota's distribution channels within the u.s. have four points: initial, offer sensible maintenance and after-sales service, and establish a good vary of service shops before launching every sales offensive. Second, opt for the key sales market, concentrate all sales forces on the target market, and attack a target market once essentially penetrating the key market. Third, strictly screen agents. Fourth, support and encourage distributors with made profits. These four aspects absolutely demonstrate Toyota's sensible distribution strategy and create unerasable contributions to its selling within the yankee market.

## **4 The Reasons to Explain Why Toyota Remain Number One in Sales**

Toyota has the system called JIT, which should make them become much worse than other car making firms during covid-19 since they should have no enough storing materials to help them face the challenges of the breaking of the supply chain. However, compared to other car making companies its loss of quantity sales or profits is not as large as people think usually, which is a problem worth discussing.

### **4.1 The Benefits from the Country It Stays**

#### **4.1.1 Novel Coronavirus Emergency Economic Response**

On April 7, 2020, Japanese government publishes the Novel Coronavirus Emergency Economic Response, which contains several policies to help the firms in Japan improve the situation of the breaking of the supply chain [4]. So the government makes a lot of subsidies to the firms there to try to rebuild their supply chains. Therefore, the Japanese government has set up a special budget fund to support supply chain restructuring to provide different types of large and small enterprises to disperse to ASEAN countries or move back to China. So Toyota can try to rebuild its supply chain with the supports of its government.

#### **4.1.2 The Trends for Firms in Japan to Move Their Supply Chain Back**

In 2018, the relationship between American and China becomes more and more serious. So the environment of the global transaction becomes much more risky. As of 2019, the number of Japanese overseas legal entities located in Asia accounted for 67.6% of their total overseas legal entities, an increase of 0.2 percentage points from 2018. Within Asia, Japan's overseas production bases are mainly concentrated in China and ASEAN countries, accounting for 44.0% and 42.1% respectively [5]. As a result, Japan can be hurt easily if the outer environment for transaction is not good. In order to avoid it, most of the Japan firms have begin to move their supply chain back to Japan. Nowadays, facing the covid-19, firms in Japan will be more likely to have a completely supply chain domestically.

### **4.2 The Specific Strategy of Toyota**

#### **4.2.1 Promotion Strategy**

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#### **4.2.2 Worth Strategy**

The factors that have an effect on product valuation square measure manifold, together with target valuation, cost, market demand, competitors' product and costs. Toyota enters the U.S. market and chiefly adopts a competitive low-price strategy in valuation. Its goal isn't to get high profits per unit product, however to quickly attack the market, acquire an explicit quantity of market share, and establish long market dominance.

In the period of time of Toyota's entry into the yankee market, its goal was to maximise its market share, as a result of it had been convinced that winning the very best market share would get pleasure from very cheap price and also the highest long profit. Therefore, Toyota sets very cheap doable worth and pursues a number one position in market share underneath the condition that the unit pricelcost worth isn't less than the variable cost [8].

#### **4.3 Toyota Still Has the Ability to Store Goods**

In the previous article we mentioned Toyota's famous "just in time system", which was implemented on the basis of a good relationship between the supplier and Toyota. Under this condition, faced with a shortage of parts in the event of an epidemic, Toyota requires its suppliers to stock chips for two to six months, i.e. a "business continuity plan". Toyota's unique model of partnership, where the supplier is more of a part of the Toyota production process, is the interlocking structure [9]. Toyota has an equity stake in the supplier's company and their relationship is very much like that of a teacher and student. Toyota teaches its suppliers advanced management practices and develops their mindset in dealing with problems [1]. Step by step, the suppliers gradually improve their capabilities, i.e. increase their production rates, so that they can produce more products to standard in less time and reduce their production costs, which also reduces Toyota's production costs to a certain extent and makes them profitable. The supplier had the capacity to produce on time and stock. The supplier's ability to produce and stockpile chips in time also provided the necessary conditions for Toyota to continue production. However, although Toyota was quick to anticipate a shortage of chips in the early stages, the amount of chips in stock was not sufficient to follow up production at a later stage, and its total production was still affected by the epidemic.

## **5 Conclusion**

Production activities have been indispensably affected by the COVID-19 but they cannot be stopped, and Toyota has used their example to show us the importance of good

supply chain relations. In the current complex social conditions, Toyota's management measures in this dangerous situation offer new ideas for all industries. However, this measure cannot be implemented in every company and there are still many issues that need to be addressed, for example, the uncertainty and diversity of suppliers. Hopefully, more practical business policies will follow that will help the manufacturing industry to fully resume production activities.

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