

# Study of the Global Market Portfolio of the Big Seven Automakers

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## Introduction

1. Data and methodology
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## Introduction

The purpose of this study is to statistically analyze the global market portfolio of the major automakers and identify their strategic agendas for global marketing.

As Toyota Motor Corporation president Akio Toyoda explained, the automobile industry is experiencing a time of great change that comes once in a hundred years.<sup>1)</sup> In concrete terms, the revolution is expressed by the acronym “CASE,” which means new areas of “Connected” cars, “Autonomous/Automated” driving, “Shared,” and “Electric.” The technological advances in these fields are dramatically changing the concept of the automobile.<sup>2)</sup> Accordingly, firms of different industries, particularly Big Tech firms such as Apple and Google, are entering the automobile industry and conducting R&D with their overwhelming know-how accumulated as ICT service providers.

The global automobile market has continued to grow since the 2010s due to advanced countries’ steady recovery from the Lehman Brothers shock and the sustainable growth of emerging countries. Based on data from OICA,<sup>3)</sup> the average annual growth rate of the global automobile market from 2010 to 2019 was 2.3%,<sup>4)</sup> while that of the entire advanced countries was 2.5%, and that of the entire emerging countries was 2.1%. This simple

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- 1) Remarks from Toyota Motor Corporation President Akio Toyoda at its financial results for the fiscal year ended March 31, 2018. <https://global.toyota/en/newsroom/corporate/22186022.html> (19th, March, 2021)
  - 2) Toyota Motor Corporation website. <https://global.toyota/en/mobility/case/> (19th, March, 2021)
  - 3) Organisation Internationale des Constructeurs d’Automobiles (International Organization of Motor Vehicle Manufacturers).
  - 4) “The average annual growth rate” is a simple arithmetic mean.

calculation explicitly indicates that a well-balanced global marketing strategy is necessary for the survival of major automakers engaged in global competition. Therefore, we would like to pay special attention to the global market portfolio of major automakers in this study.

With respect to previous studies, we refer to those that explored the developments and strategies of major automakers. For instance, Koplín et al. (2007) examined how a representative automobile company combines social and environmental standards into global supply chain management through the case of Volkswagen (hereinafter, “VW”). Han (2016) picks up the case of Toyota and investigates the possibility that creating a global identity will generate expected consumer responses. Chanaron (2006) examined a process in which strategic alliances globally create advantages in production and market based on the case of Renault-Nissan. Utilizing multiple case studies, including GM, Ford, and VW, Yip (1989) discussed how a global strategy might work and guides managers toward chances to pursue globalization. Meyer (2008) described how Honda applies its engine and other critical technologies to brand-new products uniquely designed for new customers and their new utilities. Lansbury et al. (2007) analyzed the historical development of Hyundai, and Steers (2013) investigated characteristics of Korean entrepreneurship by referring to Hyundai Group founder Chung Ju Yung. In addition, a great number of previous studies focus on major automakers. However, those are mostly individual case studies with qualitative analysis, and few studies conduct a comparative analysis between multiple automakers.

As for quantitative and comparative analysis, a series of comprehensive studies on global automobile markets by Professor Shioji’s group produced notable results (Shioji, 2008; Li, 2020). They applied two analytical perspectives: “nation standard” and “maker standard” (which highlights the nationality of the maker) and statistically verified the global competitive advantage of the automobile industry. However, they did not attempt to statistically investigate features of global marketing for each automaker because for this type of empirical research, it is difficult to use freely available automobile market data such as OICA.

Akabane (2012), the preceding research of this study, relied on the subscription database MarkLines to overcome the data problem. Akabane (2012) took the cases of six major automakers to analyze their global market portfolio and revealed that the growth center of the global automobile market had shifted from advanced countries to emerging countries after the Lehman Brothers shock. However, Akabane (2012) focused only on the five years from 2007 to 2011. Although this study applies the same research framework as that of Akabane (2012), it extends the research period from 2005 to 2019, increases research targets from six to seven automakers whose latest global annual unit sales are more than five million, updates global automobile market trends, and clarifies current strategic agendas for the major automakers through analyses of their global market

portfolios.

This paper proceeds as follows. The first section introduces our data and methodology. In the second section, we review trends in the global automobile market and present three points worthy of our attention. In the third section, based on the data and method introduced in the first section, we investigate the regional composition ratio of global unit sales for each automaker and determine their characteristics and agendas in terms of global marketing strategy. In the final section, we summarize our discussion.

## 1. Data and methodology

Generally, often-quoted data in the study of automobile markets are statistics published by the automobile manufacturing associations or automobile dealers' associations of individual countries. Although these provide the most authoritative data available and are convenient for analyzing a country in-depth, it would be painstaking and time-consuming to aggregate these data for more than one country. Therefore, we usually employ OICA's statistics, collective data sets of individual national associations, to analyze an overview of the global automobile market.

However, OICA does not provide data by automakers. In this case, we have no choice but to depend on a paid database. Among these paid databases, we employ that of MarkLines. The main feature of MarkLines is that it provides data on unit sales of individual automakers by country, which is useful for analyzing the global market portfolios of individual automakers.

With respect to our methodology, it is reasonable to assume that the business scope of major automakers such as VW and Toyota is not limited to a particular country or region but is global. Therefore, we can get a picture of global market strategies by examining the regional composition of their global unit sales. The regions we refer to here can be classified into nine entities: North America, Japan, Western Europe, Oceania, China, Asia (excluding Japan and China), Russia and Eastern Europe, Latin America, and the Middle East and Africa. The former four regions are advanced countries, and the latter five are emerging countries.

Based on the regional composition of global unit sales of each automaker, we evaluate the validity of their global market strategies. More specifically, we use the following two calculation formulas to clarify our agendas.

$$(1) \text{ Deviation}(i) = \text{Regional composition ratio}(i,j) - \text{Regional composition ratio}(ga,j)$$

i: automakers, j: regions, ga: global average

(1) is the deviation of a maker's regional composition ratio of global unit sales from the average regional composition ratio of the global automobile market. The more positive the deviation is, the more the automaker is concentrating on the region and vice versa.

- (2) Indicator for effective distribution of business resources  $(i) = \text{SUM}\{\text{ABS}(\text{Deviation}[i,j])\}$   
 i: automakers, j: regions, ABS: Absolute value

(2) is sum total of the absolute deviation of each region for the automaker. The greater it is, the more the automaker's global market portfolio differs from the average trend of the global automobile market. In contrast, the closer to zero it is, the more the automaker's global market portfolio coincide with the average trend of the global automobile market and the more effective the maker's distribution of business resources is.

If a leading automaker has a significantly large share of the global automobile market, this indicator is unlikely to make sense. However, as pointed out later, the share of VW, which had the largest global unit sales in 2019, is only 11.7%. Because this figure is adequately small, we can evaluate the effectiveness of the distribution of business resources using the above indicator.

In addition, although we are concerned with the global market portfolio of major automakers, we do not take up qualitative aspects here. In this study, we identify the characteristics and agendas of the global market strategies of major automakers exclusively through statistical analyses.

## 2. Trends of the global automobile market

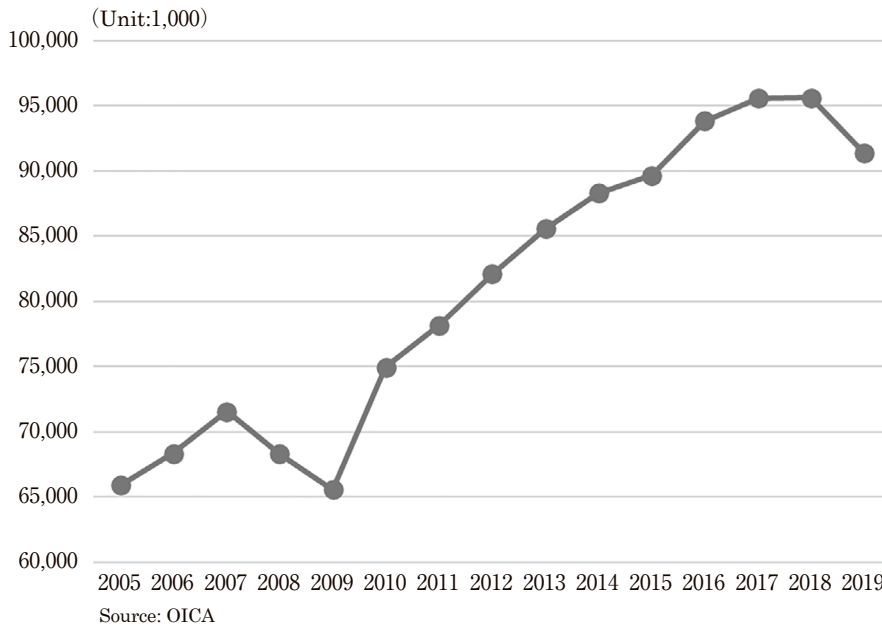
In this section, we examine several statistics to view current trends of the global automobile market. Graph 1 describes time series data of global automobile unit sales. The global automobile market dramatically decreased two years in a row from 2007 due to the so-called Lehman Brothers shock, which occurred in the United States in the second half of 2008. The Lehman Brothers shock was a financial crisis transmissible across the world, as we experienced with the Asian currency crisis (Tan, 1998). Because the United States had established trade networks with most countries, many countries were impacted by the shock to a certain extent and experienced an economic recession after the crisis.<sup>5)</sup>

In terms of the automobile market, the crisis had a significantly negative impact, which was brought about mainly through a credit squeeze. One solution to recover from a financial crisis is a belt-tightening policy. However, this causes interest rates to rise, with a subsequent credit squeeze. It is widely acknowledged that loans play a critical role in automobile sales<sup>6)</sup> and housing sales. Therefore, it is easy to imagine that people

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5) Tambunan (2012) explores the economic impacts on Southeast Asia not only of the Asian currency crisis but also the Lehman Brothers shock.

6) Furue (2006) revealed that in Japan, slightly more than 20% of purchasers use an auto loan when

**Graph 1** Global automobile unit sales

(especially the middle-income class) were not motivated to purchase automobiles during the economic turmoil.

On the other hand, global automobile sales recovered in 2010 and subsequently seemed to return to the original growth trajectory. We would like to emphasize that the growth center of the global automobile market shifted under the recovery process. Table 1 shows the regional composition ratio of the global automobile unit sales. We should note the reduced share of advanced countries and the contrasting expansion of emerging countries, especially China, where the automobile market rapidly grew and reached 28 million unit sales in 2016. Although its growth leveled off thereafter and automobile sales decreased to 25.7 million unit sales in 2019, China is the largest market and currently occupies around a 30% share in the global automobile market.

Table 2 shows the transition of automobile unit sales of the top 10 countries. We see that automobile sales in the so-called BRIC countries (Brazil, Russia, India, and China) increased, while sales in advanced countries decreased (except France) from 2005 to 2010. This also indicates the shift of the growth center after the Lehman Brothers shock. However, looking at data after 2010, we can capture another trend: Emerging markets such as China and India kept growing, while many advanced countries recovered their automobile sales. Akabane (2012) insisted that global automakers needed to respond

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they purchase a new car. Meanwhile, auto loan rates over three decades from the 1970s to 1990s rose from 20% to 75% in the US (Sellon, 2002).

**Table 1** Regional composition ratio of global automobile unit sales (%)

	2005	2006	2007	2008	2009	2010	2011	2012
North America	29.1	27.6	25.5	22.4	18.6	17.9	18.9	20.2
Japan	8.9	8.4	7.4	7.4	7.0	6.6	5.4	6.5
Western Europe	26.0	25.4	24.5	23.5	23.4	19.8	19.0	16.5
Oceania	1.7	1.6	1.6	1.6	1.5	1.5	1.4	1.5
China	8.7	10.6	12.3	13.7	20.8	24.1	23.7	23.5
Asia	8.2	7.8	8.1	8.6	9.5	10.2	10.5	11.4
Russia & E. Europe	4.9	5.7	6.9	7.9	4.2	4.3	5.2	5.3
Latin America	6.3	6.6	7.4	8.2	8.1	8.4	8.7	8.6
Middle East & Africa	6.2	6.4	6.2	6.7	6.9	7.2	7.3	6.5
<i>Advanced Countries</i>	<i>65.7</i>	<i>62.9</i>	<i>59.0</i>	<i>54.9</i>	<i>50.6</i>	<i>45.8</i>	<i>44.6</i>	<i>44.7</i>
<i>Emerging Countries</i>	<i>34.3</i>	<i>37.1</i>	<i>41.0</i>	<i>45.1</i>	<i>49.4</i>	<i>54.2</i>	<i>55.4</i>	<i>55.3</i>
	2013	2014	2015	2016	2017	2018	2019	
North America	20.8	21.3	22.2	21.3	20.6	20.7	21.4	
Japan	6.3	6.3	5.6	5.3	5.5	5.5	5.7	
Western Europe	15.5	15.9	17.1	17.4	17.3	17.4	18.4	
Oceania	1.5	1.4	1.4	1.4	1.4	1.3	1.3	
China	25.7	26.6	27.5	29.9	30.2	29.4	28.2	
Asia	10.7	10.0	10.2	10.0	10.4	11.0	10.7	
Russia & E. Europe	4.9	4.3	3.0	3.0	3.4	3.7	3.9	
Latin America	8.5	7.5	6.5	6.0	6.0	6.4	6.3	
Middle East & Africa	6.2	6.7	6.5	5.8	5.1	4.6	4.1	
<i>Advanced Countries</i>	<i>44.0</i>	<i>44.9</i>	<i>46.4</i>	<i>45.3</i>	<i>44.8</i>	<i>45.0</i>	<i>46.8</i>	
<i>Emerging Countries</i>	<i>56.0</i>	<i>55.1</i>	<i>53.6</i>	<i>54.7</i>	<i>55.2</i>	<i>55.0</i>	<i>53.2</i>	

Source: OICA

**Table 2** Transition of automobile unit sales of top 10 countries (unit)

Ranking	Country	2005	Country	2010	Country	2015	Country	2019
1	U.S.	17,444,329	China	18,061,936	China	24,661,602	China	25,768,677
2	Japan	5,852,034	U.S.	11,772,219	U.S.	17,845,624	U.S.	17,480,004
3	China	5,758,189	Japan	4,956,148	Japan	5,046,510	Japan	5,195,216
4	Germany	3,614,886	Brazil	3,515,064	Germany	3,539,825	Germany	4,017,059
5	U.K.	2,828,127	Germany	3,198,416	India	3,424,836	India	3,816,891
6	France	2,598,183	India	3,040,390	U.K.	3,061,406	Brazil	2,787,850
7	Italy	2,495,436	France	2,708,884	Brazil	2,568,976	France	2,755,696
8	Spain	1,959,488	U.K.	2,293,576	France	2,345,092	U.K.	2,676,918
9	Russia	1,806,625	Italy	2,164,153	Canada	1,939,517	Italy	2,131,916
10	Brazil	1,714,644	Russia	2,107,135	Korea	1,833,786	Canada	1,975,855

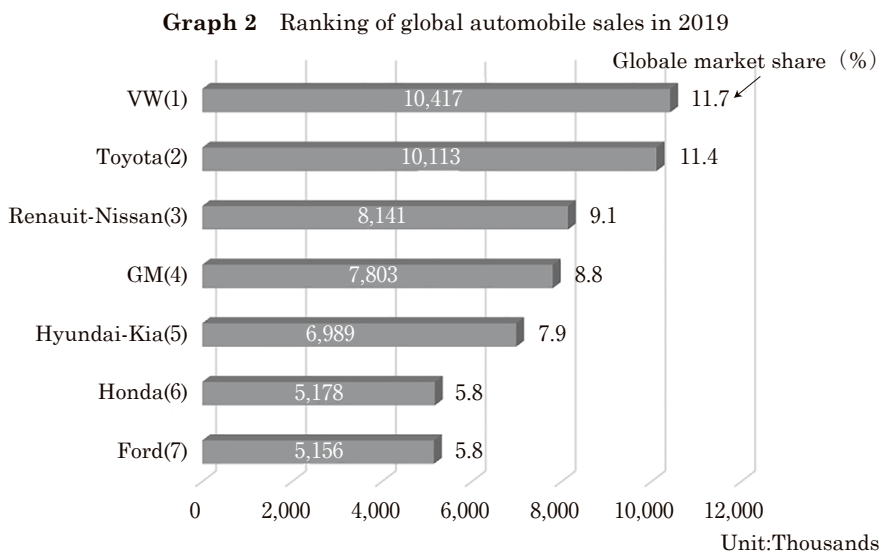
Source: OICA

quickly to the growth of emerging markets after the Lehman Brothers shock. However, Table 1 and Table 2 point out that advanced countries keep a constant share in the global automobile market, and global automakers should not underestimate it.

Next, we examine the global unit sales ranking of automakers in Graph 2. We see that seven major automakers, with annual global unit sales of more than 5 million, are composed of Japanese, US, European, and Korean brands: VW, Toyota, Renault-Nissan, GM, Hyundai-Kia, Honda, and Ford.

Graph 2 shows another important point we should note. The share of VW, the top automaker in 2019, is only 11.7%. According to the Lanchester Strategy,<sup>7)</sup> this is a polyopoly, where the market is unstable, with a strong possibility of abrupt shifts in rankings (Campbell & Roberts, 1986). To put it concretely, the global automobile market is very competitive, and there is no dominant automaker acting as a leader.

Table 3 is an expansion of global automobile unit sales of the major automakers. It indicates that the seven major automakers can be divided into three categories in terms of expansion of global automobiles sales in the past 15 years, namely a high-growth category of VW and Hyundai-Kia, a middle-growth category of Toyota, Renault-Nissan, and Honda, and a sluggish category of GM and Ford. The reason why global sales performance has differed among the major automakers is an issue of deep concern in this study.



Source: MarkLines

7) The Lanchester strategy was originally a military theory and has been applied to management science in Japan. Taoka (1975) and Onoda (1980) employed the Lanchester strategic equation of Koopeman (1943) to determine market share targets.

**Table 3** Expansion of global automobile unit sales of the major automakers from 2005 to 2019

	2005	2010	2015	2019
VW (1)	1	1.5	2.1	2.3
Toyota (2)	1	1.1	1.3	1.4
Renault-Nissan (3)	1	1.2	1.5	1.6
GM (4)	1	1.0	1.2	0.9
Hyundai-Kia (5)	1	1.8	2.5	2.4
Honda (6)	1	1.1	1.4	1.6
Ford (7)	1	0.9	1.0	0.9

Note: The number of unit sales in 2005 is 1.

Source: Author calculation based on MarkLines

To sum up the result of statistical analyses so far, we can present the following three points. First, the center of growth in the global automobile market rapidly shifted to emerging countries after the Lehman Brothers shock, while advanced countries also recovered their automobile sales since 2010. This indicates that automakers should not only penetrate emerging markets but also spare their business resources in the markets of advanced countries to some extent. Second, no dominant automaker stands out from the others in the global automobile market. This means that even the maker with the top share has to distribute its business resources effectively; otherwise, it would easily lose in the global competition. Third, there are seven major automakers whose global automobile sales are over five million. We collectively call these seven automakers “the Big Seven” and clarify the background of differences in their global unit sales performance.

### 3. Global market portfolio of the Big Seven

In this section, we examine the global market portfolio of the Big Seven automakers. First, we look at the regional composition ratio of global unit sales for the Big Seven. Then, we analyze their deviations and indicators for effective distribution of business resources.

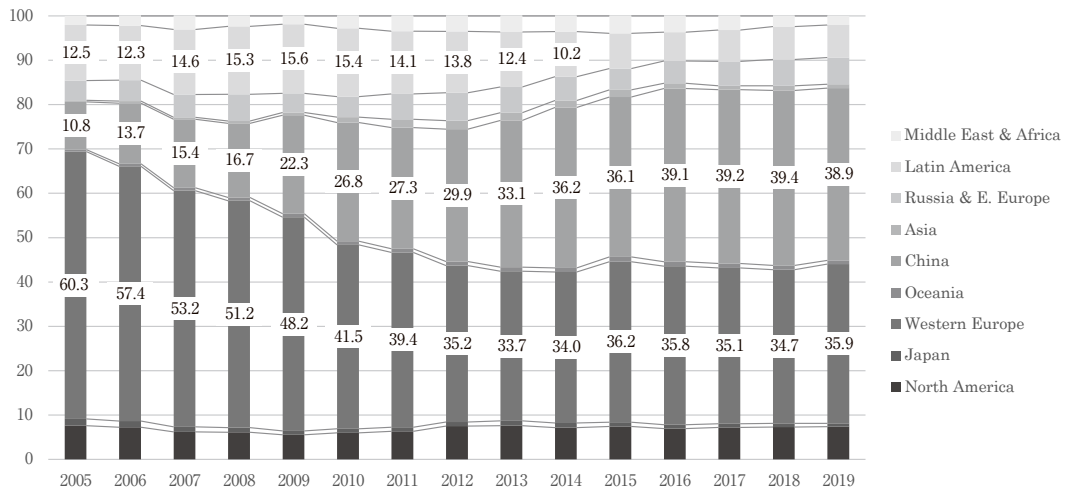
#### 1) VW

Graph 3 is a time series trend of the regional composition ratio of global unit sales for VW. In 2005, the ratio of Western Europe was 60.3%, the largest ratio among the nine regions. As VW is a German automaker, it would be comparatively easy to penetrate the markets of surrounding Western European countries. On the other hand, the ratio of Western Europe decreased in the following years, while that of China expanded toward the mid-2010s. Currently, China’s ratio is the biggest, which means China is the most important outlet for VW.



Table 4 describes the deviations of each region. We capture specific implications for the global market strategy of VW here. First, the deviation of Western Europe is significantly positive throughout the period, but the amount decreased in the latter half of the 2000s and has become relatively stable since the 2010s. On the other hand, North America shows an opposite trend in that the deviation was negative. However, the negative

**Graph 3** Regional composition ratio of global unit sales for VW (%)



Source: MarkLines

**Table 4** Deviation of each region for VW

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
North America	-21.5	-20.3	-19.3	-16.3	-13.1	-11.9	-12.5	-12.7	-13.2	-14.2	-14.7	-14.3	-13.4	-13.4	-14.0
Japan	-7.4	-7.0	-6.3	-6.4	-6.2	-5.7	-4.5	-5.6	-5.2	-5.2	-4.7	-4.5	-4.6	-4.7	-4.9
Western Europe	34.3	32.1	28.8	27.7	24.8	21.7	20.5	18.8	18.2	18.1	19.1	18.4	17.8	17.2	17.5
Oceania	-1.2	-1.0	-1.0	-0.9	-0.8	-0.7	-0.5	-0.6	-0.5	-0.5	-0.4	-0.4	-0.4	-0.4	-0.5
China	2.0	3.1	3.2	3.0	1.4	2.7	3.6	6.3	7.4	9.6	8.6	9.2	9.0	10.1	10.6
Asia	-7.8	-7.4	-7.7	-8.1	-8.9	-9.0	-8.6	-9.4	-8.9	-8.4	-8.6	-8.9	-9.6	-9.9	-9.8
Russia & E. Europe	-0.5	-1.0	-1.7	-1.9	0.2	0.3	0.5	1.0	0.9	1.1	1.8	2.0	2.1	2.3	2.1
Latin America	6.3	5.7	7.2	7.1	7.5	7.0	5.4	5.2	3.9	2.7	1.5	0.5	1.0	1.0	1.0
Middle East & Africa	-4.2	-4.2	-3.2	-4.3	-5.0	-4.4	-3.9	-3.0	-2.6	-3.2	-2.5	-2.2	-2.0	-2.2	-2.1
Indicator for effective distribution of business resources	85.2	81.8	78.3	75.6	67.8	63.4	60.0	62.7	60.8	62.9	61.8	60.4	59.9	61.3	62.6

Source: Author's calculation based on OICA and MarkLines

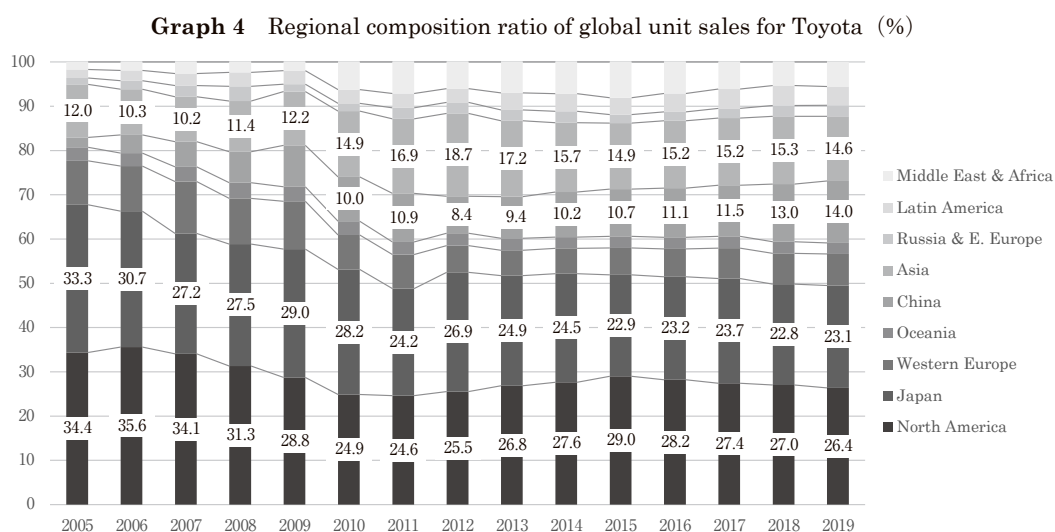
amount shrank in the latter half of the 2000s and became stable after the 2010s. As for China, the deviation was positive and gradually increased. As for the other regions, we find that the absolute deviation was small (less than 10). Accordingly, the indicator for effective distribution of business resources dropped to 60.0 in 2011, an improvement of 25.2 points from 2005, and fluctuated at around 60 throughout the 2010s. Consequently, what can be read from Table 4 is that VW rapidly adjusted its global market portfolio in line with global market trends after the Lehman Brothers shock and has continued to place priority on the Chinese market in recent years.

## 2) Toyota

Graph 4 is the regional composition ratio of global unit sales for Toyota. In 2005, the ratio of Japan was 33.3% and that of North America 34.4%. The two major markets occupied almost 70% of Toyota's global unit sales. However, the ratios of both markets decreased in the following years and dropped to about 24% respectively in 2011. In contrast, the ratio of Asia, which was 12.0% in 2005, increased in the latter half of the 2000s. It reached 18.7% in 2012 and has been around 15% through 2019. Similarly, the ratio of China also shows an upward trend. Although it was only 2.2% in 2005, it increased over time and reached 14.0% in 2019.

Based on the above analysis, we understand that Toyota prioritized the Asian market, including China, during the past 15 years. On the other hand, Japan and North America still seem to be important for Toyota despite both ratios becoming smaller. Consequently, Toyota currently has four main markets: Asia, China, Japan, and North America.

Table 5 describes the deviations of each region for Toyota. As shown here, Toyota's



Source: MarkLines

**Table 5** Deviation of each region for Toyota

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
North America	5.2	8.1	8.5	9.0	10.2	7.0	5.7	5.3	6.1	6.3	6.9	7.0	6.8	6.3	5.0
Japan	24.5	22.3	19.8	20.1	22.0	21.6	18.8	20.4	18.6	18.2	17.3	17.9	18.2	17.3	17.4
Western Europe	-16.0	-15.2	-12.7	-13.1	-12.7	-12.0	-11.3	-10.5	-9.8	-10.2	-11.0	-11.1	-10.5	-10.5	-11.3
Oceania	1.4	1.4	1.7	1.9	1.8	1.6	1.4	1.3	1.3	1.1	1.2	1.2	1.3	1.3	1.2
China	-6.5	-6.5	-6.6	-6.7	-11.5	-14.1	-12.7	-15.2	-16.3	-16.4	-16.8	-18.7	-18.7	-16.3	-14.2
Asia	3.8	2.5	2.1	2.8	2.7	4.6	6.4	7.3	6.5	5.7	4.7	5.2	4.7	4.4	4.0
Russia & E. Europe	-3.5	-3.8	-4.3	-4.5	-2.5	-2.6	-2.7	-2.8	-2.4	-1.7	-1.1	-1.0	-1.2	-1.2	-1.4
Latin America	-4.3	-4.3	-4.7	-5.1	-5.0	-5.3	-5.5	-5.5	-4.7	-3.5	-2.7	-1.8	-1.7	-1.9	-2.0
Middle East & Africa	-4.5	-4.5	-3.6	-4.3	-4.9	-0.9	-0.2	-0.5	0.7	0.5	1.6	1.3	1.0	0.8	1.4
Indicator for effective distribution of business resources	69.8	68.4	64.1	67.5	73.2	69.7	64.8	68.8	66.4	63.7	63.2	65.2	64.0	60.0	57.9

Source: Author's calculation based on OICA and MarkLines

global market strategy concentrates more on North America and Japan. Although Toyota has expanded unit sales in the Chinese market, the deviation of China widens its negative gap on the whole, which means that Toyota cannot be catching up with the expansion trend of the Chinese automobile market.

Looking at the indicator for effective distribution of business resources, it deteriorated until 2009 and improved in the following years. This trend coincides with the impact on Toyota of the Lehman Brothers shock and Toyota's strategic shift to the Asian and Chinese markets after the crisis.

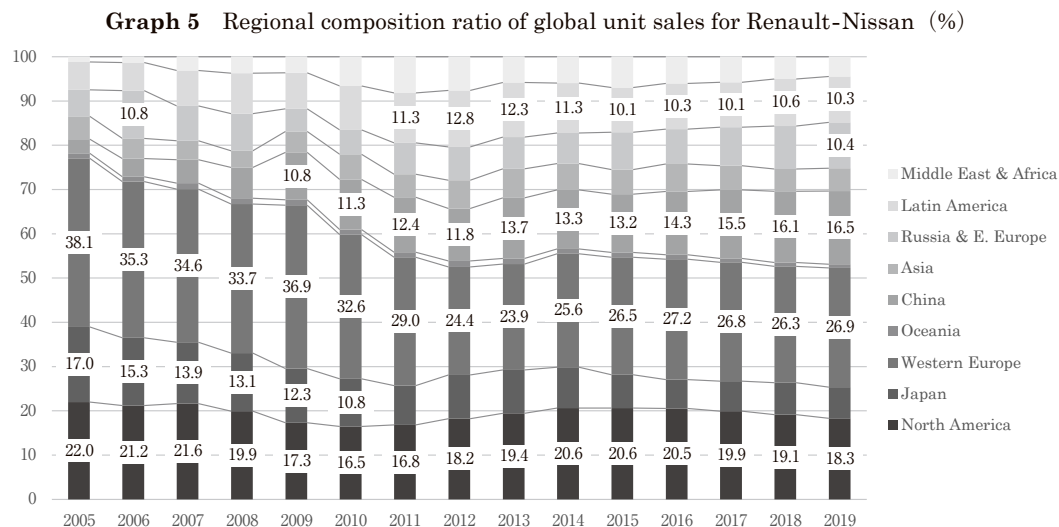
### 3) Renault-Nissan

From Graph 5, we find that Renault-Nissan's global market portfolio seems to be more diversified than others. Specifically, the number of regions with more than a 10% ratio in 2019 is five. This is the largest number among the Big Seven. Renault-Nissan is a strategic alliance group composed of European and Japanese automakers. We can infer that the alliance works well in the context that its global market portfolio is becoming more diversified over time.

As for the composition ratio of individual regions, what draws our attention is a certain presence of emerging markets such as Latin America and Russia and Eastern Europe. This is because traditionally, the Renault brand has had a strong position in these markets. On the other hand, the ratio of Western Europe and Japan, which are home markets for Renault-Nissan, decreased. Although the phenomenon was accompanied by

its diversification of global market portfolio, the actual unit sales in Japan decreased from 887,940 in 2005 to 574,448 in 2019, while those in Western Europe slightly increased from 1,990,901 in 2005 to 2,191,017 in 2019. Accordingly, we understand that Nissan has lost competitiveness in its home market in recent years.

Looking at Table 6, the deviation for advanced countries is stable or getting closer to



Source: MarkLines

**Table 6** Deviation of each region for Renault-Nissan

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
North America	-7.1	-6.4	-3.9	-2.4	-1.3	-1.4	-2.0	-2.0	-1.3	-0.7	-1.5	-0.7	-0.7	-1.6	-3.1
Japan	8.1	6.9	6.5	5.7	5.2	4.1	3.5	3.3	3.5	2.9	1.9	1.2	1.3	1.7	1.4
Western Europe	12.1	9.9	10.1	10.2	13.4	12.8	10.0	7.9	8.3	9.7	9.4	9.8	9.5	8.9	8.5
Oceania	-0.5	-0.5	-0.3	-0.3	-0.3	-0.3	-0.3	-0.1	-0.2	-0.3	-0.4	-0.4	-0.6	-0.5	-0.5
China	-5.6	-6.4	-7.0	-6.8	-10.1	-12.8	-11.2	-11.7	-12.0	-13.3	-14.3	-15.6	-14.7	-13.3	-11.7
Asia	-3.0	-3.3	-3.8	-4.9	-4.7	-4.6	-5.3	-5.0	-4.1	-4.1	-4.7	-3.8	-5.0	-5.9	-5.5
Russia & E. Europe	1.1	5.1	1.0	0.5	0.9	1.2	1.9	2.2	2.3	2.7	5.5	4.9	5.4	6.0	6.5
Latin America	0.0	-0.2	0.6	0.9	0.1	1.5	2.6	4.2	3.9	3.8	3.6	4.4	4.1	4.2	4.0
Middle East & Africa	-5.0	-5.1	-3.1	-3.0	-3.3	-0.6	0.9	1.1	-0.4	-0.7	0.5	0.2	0.6	0.5	0.3
Indicator for efficient distribution of business resources	42.6	43.8	36.3	34.7	39.3	39.4	37.6	37.5	36.1	38.1	41.9	40.9	41.9	42.5	41.4

Source: Author's calculation based on OICA and MarkLines

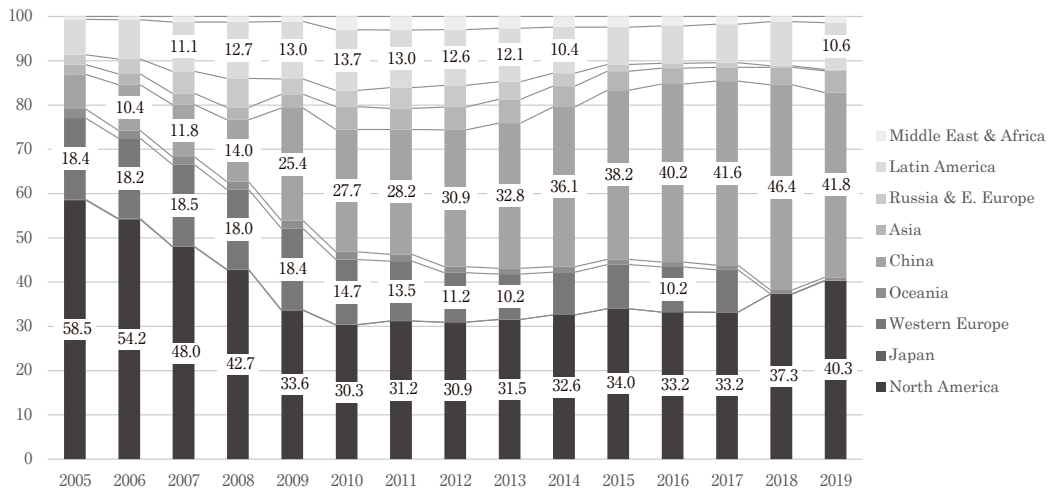
zero, while that of China constantly shows a negative gap. As a result, the indicator for effective distribution of business resources is stable as a whole throughout the period. This means that Renault-Nissan cannot catch up with the expansion trend of the Chinese automobile market. Renault-Nissan shares this problem with Toyota.

#### 4) GM

Graph 6 shows the regional composition ratio of global unit sales for GM. In 2005, the ratio of North America was 58.5% and that of Western Europe was 18.4%. However, we notice that both ratios decreased in the following years, while that of China expanded dramatically. As GM was severely impacted by the Lehman Brothers shock, it filed for Chapter 11 bankruptcy and reorganized in 2009. After its reorganization, the ratio of North America increased again; however, that of Western Europe became negligible after 2018. This is because GM mostly withdrew its Opel and Vauxhall brands from Europe in 2017.<sup>8)</sup> Another point we should note is the relatively steady ratio of Latin America. GM is known to have had a traditionally strong position in the Latin American automobile market. The ratio fluctuated around 10% over time. Currently, China and North America together occupy more than 80% of GM's global unit sales.

From Table 7, we can infer one of the problems GM has been facing in recent years. The indicator for effective distribution of business resources improved in the latter half of the 2000s, but it deteriorated through the 2010s. This clearly indicates GM's reliance on China

**Graph 6** Regional composition ratio of global unit sales for GM (%)



Source: MarkLines

8) CNBC website. <https://www.cnbc.com/2019/05/17/why-general-motors-sold-opel-and-vauxhall-brands-in-europe.html> (19th, March, 2021)

**Table 7** Deviation of each region for GM

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
North America	29.4	26.6	22.4	20.4	15.0	12.4	12.3	10.7	10.8	11.3	11.8	11.9	12.6	16.6	18.9
Japan	-8.7	-8.2	-7.3	-7.3	-6.9	-6.5	-5.3	-6.5	-6.2	-6.3	-5.6	-5.3	-5.5	-5.5	-5.7
Western Europe	-7.6	-7.2	-6.0	-5.4	-5.1	-5.1	-5.5	-5.3	-5.3	-6.2	-7.2	-7.2	-7.7	-17.4	-18.4
Oceania	0.4	0.2	0.1	0.1	0.2	0.2	0.1	-0.1	-0.2	-0.2	-0.3	-0.3	-0.4	-0.5	-0.6
China	-0.9	-0.2	-0.5	0.3	4.6	3.6	4.6	7.4	7.1	9.5	10.7	10.3	11.4	17.0	13.6
Asia	-6.0	-5.4	-5.6	-5.8	-6.3	-5.1	-5.7	-6.2	-5.3	-5.3	-5.9	-6.4	-7.3	-7.0	-5.8
Russia & E. Europe	-2.7	-2.4	-1.9	-1.3	-0.7	-0.6	-0.5	-0.4	-0.9	-1.3	-1.5	-1.9	-2.3	-3.3	-3.6
Latin America	1.7	2.3	3.7	4.5	4.9	5.3	4.3	4.0	3.6	2.9	2.0	2.5	2.7	3.5	4.3
Middle East & Africa	-5.6	-5.6	-5.0	-5.4	-5.8	-4.1	-4.3	-3.5	-3.6	-4.3	-4.1	-3.7	-3.4	-3.4	-2.7
Indicator for effective distribution of business resources	62.9	58.1	52.4	50.5	49.5	43.0	42.6	44.2	43.0	47.2	49.0	49.6	53.2	74.2	73.5

Source: Author's calculation based on OICA and MarkLines

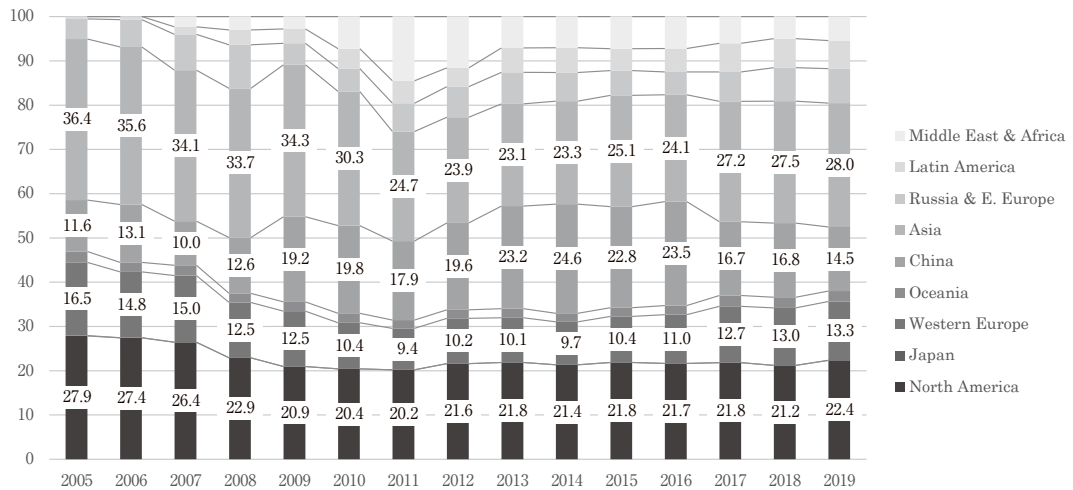
and North America. It is rational for a lesser automaker with limited business resources to concentrate on a particular market. However, such a choice and focus strategy would most likely be tenuous and risky as long as GM pursues a global presence and competes with other global automakers such as VW and Toyota.

### 5) Hyundai-Kia

In Graph 7, we find that Hyundai-Kia's unique trend differs from the other automakers. The ratio of Asia was 36.4% in 2005, but then gradually decreased and has become stable at less than 30% in recent years. Hyundai-Kia occupies approximately a 60 to 70% share in the Korean automobile market, where around 1.8 million vehicles have been constantly sold since 2015, which accounts for the comparative height of the composition ratio for Asia. In contrast, the ratio of China expanded to over 20% after the Lehman Brothers shock but shrank to around 15% in 2019.

Furthermore, what is remarkable for Hyundai-Kia is the composition ratio of Western Europe. As symbolized by Toyota's low composition ratio in Graph 4, the Asian brand has had a relatively weak position in the Western European market. However, Hyundai-Kia almost maintained more than 10% throughout the period and has even shown an upward trend since 2015.

Table 8 indicates that the global market strategy of Hyundai-Kia can be divided into two phases, namely before and after around 2014. The indicator for effective distribution of business resources had dramatically improved until 2014. This implies that Hyundai-

**Graph 7** Regional composition ratio of global unit sales for Hyundai-Kia (%)

Source: MarkLines

**Table 8** Deviation of each region for Hyundai-Kia

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
North America	-1.3	-0.1	0.9	0.5	2.3	2.5	1.3	1.4	1.1	0.0	-0.3	0.4	1.2	0.5	1.0
Japan	-8.8	-8.3	-7.4	-7.4	-7.0	-6.6	-5.4	-6.5	-6.3	-6.3	-5.6	-5.3	-5.5	-5.5	-5.7
Western Europe	-9.5	-10.5	-9.4	-11.0	-10.9	-9.4	-9.6	-6.3	-5.4	-6.2	-6.7	-6.4	-4.6	-4.5	-5.1
Oceania	0.8	0.6	0.7	0.4	0.6	0.6	0.5	0.5	0.6	0.5	0.6	0.7	1.0	1.0	1.0
China	2.9	2.5	-2.3	-1.1	-1.6	-4.3	-5.8	-3.9	-2.5	-2.0	-4.7	-6.4	-13.6	-12.6	-13.7
Asia	28.2	27.7	26.0	25.1	24.9	20.1	14.3	12.5	12.4	13.3	14.9	14.1	16.8	16.6	17.3
Russia & E. Europe	-0.3	0.4	1.2	2.0	0.7	0.8	1.2	1.7	2.3	2.2	2.6	2.2	3.3	3.9	3.9
Latin America	-5.8	-5.9	-5.8	-4.9	-4.8	-3.9	-3.6	-4.4	-3.0	-1.9	-1.5	-0.7	0.4	0.1	0.1
Middle East & Africa	-6.2	-6.4	-3.9	-3.7	-4.1	0.1	7.2	5.1	0.8	0.4	0.8	1.4	0.9	0.4	1.3
Indicator for effective distribution of business resources	63.7	62.6	57.6	56.1	57.0	48.3	48.8	42.1	34.3	32.8	37.7	37.4	47.3	45.1	49.1

Source: Author's calculation based on OICA and MarkLines

Kia diversified its global market portfolio in line with global market trends. Actually, we can see the deviations for most regions were getting closer to zero toward 2014. Although Asia was still the prime market for Hyundai-Kia, its positive gap of deviation was rapidly getting smaller.

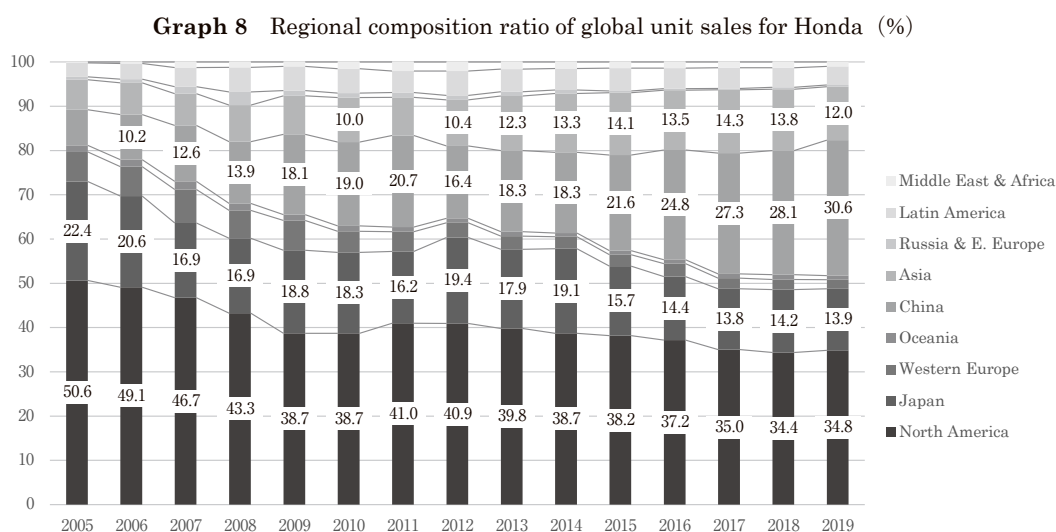
On the other hand, the indicator has been deteriorating since 2014. This is mainly

because the negative gap of the deviation for China has been getting bigger. This indicates that Hyundai-Kia also faces the problem of being behind from rapid growth of the Chinese market as well as Toyota and Renault-Nissan.

## 6) Honda

In Graph 8, we see that Honda significantly depended on North America and Japan, as the total ratios of both regions were over 70% in 2005. However, the ratios of both regions are getting smaller, while that of China rapidly increased over time and reached 30.6% in 2019. Currently, China is the second biggest market, following North America. In addition, what we should note here is a steady ratio for Asia and Japan. As with the case of Toyota, Honda has four main markets in 2019: North America, China, Japan, and Asia.

Table 9 tells us the characteristics of Honda more eloquently. In the latter half of the 2000s, Honda's global market portfolio was more dominated by North America and Japan. Most of the deviations for the other regions were almost negative, which meant its market strategy concentrated less on these regions. However, from the mid-2010s, deviations for most of the regions are getting closer to zero on the whole. As a result, the indicator for effective distribution of business resources has obviously improved since 2014, which means Honda has successfully corrected its advanced country-oriented strategy. Particularly noteworthy is that the negative gap of the deviation for China has been getting small since 2014 and became slightly positive in 2019. This indicates that Honda has been able to catch up with the recent rapid growth of the Chinese automobile market.



Source: MarkLines



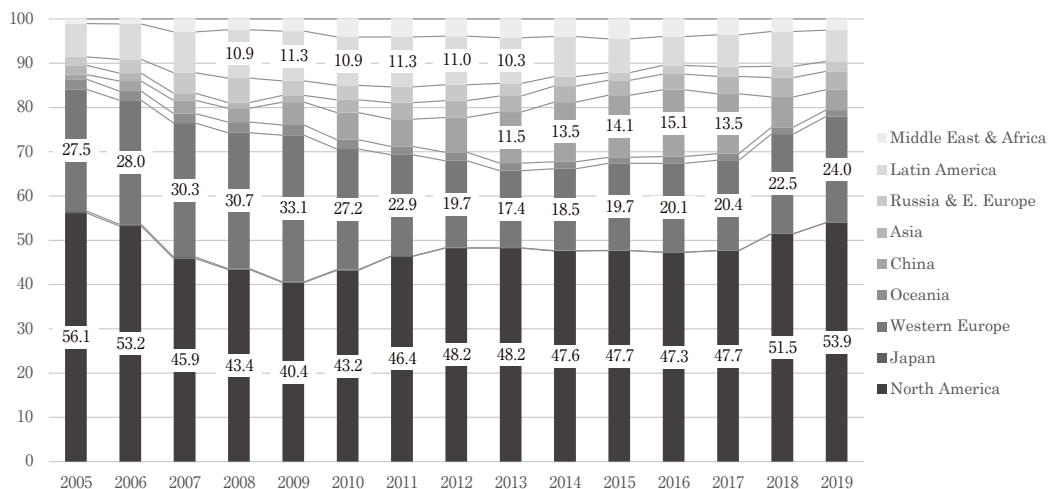
**Table 9** Deviation of each region for Honda

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
North America	21.5	21.6	21.2	20.9	20.1	20.8	22.1	20.7	19.0	17.4	16.0	15.9	14.4	13.6	13.4
Japan	13.5	12.2	9.5	9.4	11.7	11.7	10.9	12.9	11.6	12.8	10.1	9.1	8.3	8.7	8.3
Western Europe	-19.2	-18.7	-16.9	-17.1	-16.7	-15.0	-14.5	-13.2	-12.6	-13.2	-14.6	-14.5	-15.0	-15.2	-16.4
Oceania	-0.2	0.0	0.2	-0.1	-0.2	-0.3	-0.3	-0.5	-0.5	-0.6	-0.5	-0.5	-0.4	-0.3	-0.4
China	-0.7	-0.4	0.3	0.2	-2.7	-5.1	-3.0	-7.2	-7.4	-8.3	-5.9	-5.1	-2.9	-1.3	2.4
Asia	-1.4	-0.7	-0.9	-0.4	-0.8	-0.2	-1.9	-1.0	1.6	3.2	3.9	3.5	3.8	2.8	1.4
Russia & E. Europe	-4.3	-4.9	-5.3	-4.9	-3.0	-3.3	-4.1	-4.3	-3.9	-3.5	-2.6	-2.7	-3.0	-3.2	-3.5
Latin America	-3.1	-3.1	-3.1	-2.7	-2.6	-2.9	-3.9	-3.1	-3.4	-2.7	-1.3	-1.3	-1.4	-2.0	-2.1
Middle East & Africa	-6.0	-6.0	-5.0	-5.4	-5.9	-5.6	-5.3	-4.5	-4.6	-5.2	-5.1	-4.5	-3.8	-3.3	-3.1
Indicator for effective distribution of business resources	69.9	67.5	62.4	61.2	63.7	64.9	65.9	67.2	64.6	66.9	60.0	57.0	53.1	50.4	50.9

Source: Author's calculation based on OICA and MarkLines

## 7) Ford

From Graph 9, we see that the composition ratio of North America is the biggest and followed by that of Western Europe throughout the period. It seems that Ford tried diversifying its global market portfolio toward the middle of the 2010s because the total ratio of the two prime regions decreased. However, the total ratio has been increasing

**Graph 9** Regional composition ratio of global unit sales for Ford (%)

Source: MarkLines

**Table 10** Deviation of each region for Ford

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
North America	27.0	25.7	20.3	21.0	21.8	25.3	27.5	28.0	27.5	26.3	25.5	26.0	27.1	30.7	32.5
Japan	-8.4	-8.0	-7.1	-7.2	-6.8	-6.4	-5.3	-6.5	-6.2	-6.2	-5.5	-5.3	-5.5	-5.5	-5.7
Western Europe	1.5	2.7	5.8	7.3	9.7	7.4	3.9	3.2	1.9	2.6	2.5	2.7	3.1	5.1	5.5
Oceania	0.6	0.5	0.5	0.8	0.8	0.6	0.5	0.4	0.2	0.2	-0.1	0.1	0.1	0.2	0.2
China	-7.7	-8.3	-9.3	-10.6	-15.6	-18.0	-17.5	-15.6	-14.1	-13.1	-13.4	-14.8	-16.7	-22.5	-23.6
Asia	-6.1	-6.1	-6.5	-7.4	-7.9	-7.3	-6.7	-7.6	-7.0	-6.4	-6.9	-6.4	-6.5	-6.6	-6.5
Russia & E. Europe	-3.0	-2.6	-2.3	-2.3	-0.9	-1.0	-1.6	-1.7	-2.1	-2.1	-1.3	-1.1	-1.2	-1.1	-1.6
Latin America	1.3	1.4	1.8	2.7	3.2	2.5	2.6	2.4	1.8	1.5	1.1	0.6	1.2	1.4	0.8
Middle East & Africa	-5.2	-5.3	-3.3	-4.2	-4.2	-3.1	-3.3	-2.7	-2.0	-2.7	-2.0	-1.9	-1.6	-1.7	-1.6
Indicator for effective distribution of business resources	60.8	60.5	57.0	63.3	70.9	71.7	68.9	68.0	62.9	61.2	58.3	58.9	62.8	74.8	78.1

Source: Author's calculation based on OICA and MarkLines

again since 2017. What differs from GM, another American automaker among the Big Seven, is Ford's low ratio of emerging markets, especially China. As we saw in Graph 6, GM successfully exploited the Chinese market, but Ford seems to be failing in this.

From Table 10, we understand a structural problem Ford faces in its global marketing. After 2015, the positive gap of deviation for North America increases; meanwhile, the negative gap of deviation for China expands. Accordingly, the indicator for effective distribution of business resources has rapidly deteriorated and reached 78.1 in 2019, which is the worst among the Big Seven.

### 8) Comparative analysis

Table 11 shows comparisons of the main markets of the Big Seven with the regional composition ratio of each brand's global automobile unit sales in 2019. Only regions with more than a 10% ratio are picked up. We would like to emphasize the following four points here.

First, we understand that Renault-Nissan has the most diversified market structure among the Big Seven, so it is relatively robust against economic recession in a certain region. Second, we also find that the global market portfolio of Asian automakers is more diversified than that of American and European automakers on the whole. One reason is that it seems to be very difficult for most American and European automakers to enter the Asian market, including Japan. No American or European automaker records over 10% of the regional composition ratio for Asia nor Japan. Third, most automakers record a

high composition ratio for their home markets where they already have a built-in base. Fourth, the ranking of global automobile sales in 2019 seems to have small relation with “Diversified” or “Concentrated,” although for this point, we need a further cautious examination by checking time series data of the indicators for effective distribution of business resources in Graph 10 and Table 12.

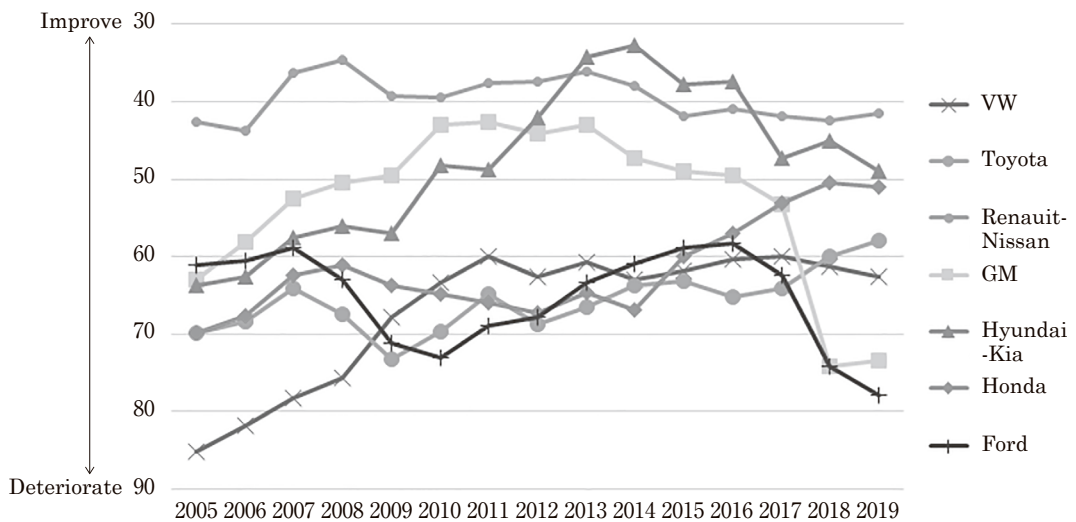
Graph 10 compares time series indicators for effective distribution of business resources, and Table 12 provides outlines of trends of the indicators for each automaker.

**Table 11** Main markets and their composition ratios of the Big Seven (%)

Makers	Sales ranking in 2019	Main markets in 2019 (over 10%)	Diversified/Concentrated
VW	1	China (38.9), Western Europe (35.9)	Very concentrated
Toyota	2	North America (26.4), Japan (23.1), Asia (14.6), China (14.0)	Diversified
Renault-Nissan	3	Western Europe (26.9), North America (18.3), China (16.5), Russia & Eastern Europe (10.4), Latin America (10.3)	Very diversified
GM	4	China (41.8), North America (40.3), Latin America (10.6)	Concentrated
Hyundai-Kia	5	Asia (28.0), North America (22.4), China (14.5), Western Europe (13.3)	Diversified
Honda	6	North America (34.8), China (30.6), Japan (13.9), Asia (12.0)	Diversified
Ford	7	North America (53.9), Western Europe (24.0)	Very concentrated

Source: Author’s creation based on the analysis

**Graph 10** Time series of the indicators for effective distribution of business resources



Source: Author’s Calculation based on OICA and MarkLines

**Table 12** Trend of the indicators for effective distribution of business resources

	Effectiveness	2005-2010	2010-2015	2015-2019
VW	High			
	Middle	1.0	1.5	2.1 → 2.3
	Low			
Toyota	High			1.4
	Middle	1.0	1.1	1.3
	Low			
Renault-Nissan	High	1.0	1.2	1.5 → 1.6
	Middle			
	Low			
GM	High	1.0	1.0	1.2
	Middle			0.9
	Low			
Hyundai-Kia	High		1.8	2.5 → 2.4
	Middle	1.0		
	Low			
Honda	High		1.1	1.4 → 1.6
	Middle	1.0		
	Low			
Ford	High	1.0		1.0
	Middle		0.9	0.9
	Low			

Source: Author's creation based on the analysis

In Graph 10, the indicator is placed on the left axis, upside down. Hence, the higher the graph goes, the more effective the distribution of business resources. “High,” “Middle,” and “Low” in Table 12 coincide with the indicator range from 30 to 50, 50 to 70, and 70 to 90, respectively. The figure beside each arrow is the same as what we saw in Table 3, indicating an expansion degree of global automobile unit sales (see at Table 3). As for the relation between the direction of the arrow and the magnitude of the figure, we can hypothesize that the figure (=global automobile unit sales) increases if the arrow is upward or stays at the range of “High.” Similarly, the figure decreases if the arrow is downward or stays at the range of “Low,” and the figure indicates almost no change if the arrow stays at the range of “Middle.”

Looking at the direction of the arrow and the figure for each maker in Table 12, we understand that the hypothesis has been verified for Toyota, Renault-Nissan, Hyundai-Kia, Honda, and Ford; meanwhile, VW and GM seem to be partly exceptional. In the case of VW, the figure shows a 0.8-point increase from 2010 to 2019 even though the arrow stayed at the range of “Middle” during this period. As for GM, the arrow showed an

upward trend from 2005 to 2010, but the figure remained 1.0 regardless.

The two exceptional cases can be explained by the special factors of China and North America, the two biggest automobile markets in the world. As we saw in Graph 3, VW has increased the regional composition ratio of China. Actually, VW dramatically expanded unit sales in China, from 1,871,336 in 2010 to 4,047,759 in 2019. Accordingly, China accounts for around 63% of VW's global unit sales increase during the period. Therefore, we can say that the increase of VW's global unit sales after 2010 is mainly due to a strategic penetration into the Chinese market rather than an effective distribution of business resources. On the other hand, GM was originally very dependent on the North American market (mostly the US) and therefore seriously impacted by the Lehman Brothers shock. The US automobile market shrunk from 17,444,329 in 2005 to 11,772,219 in 2010. GM also reduced unit sales in the US market from 4,504,871 in 2005 to 2,214,966 in 2010. This implies the main reason the arrow showed an upward trend from 2005 to 2010 is the rapid decrease of GM's unit sales in the US market, which is definitely an unhealthy phenomenon.

When we view Table 12, we can categorize each automaker into four types. The first type includes Toyota and Honda, which gradually adjust their regional composition of global unit sales to align with the global market trends. Akabane (2012) pointed out that these two Japanese automakers clung to conventional markets such as North America and Japan and suffered from sluggish growth after the Lehman Brothers shock. However, we have revealed that both automakers are enhancing the effectiveness of distribution of business resources, particularly since 2010. Consequently, Toyota and Honda have been able to obtain diversified and robust global market portfolios in recent years. The second type includes Renault-Nissan and Hyundai-Kia, which fundamentally maintain their highly effective distribution of business resources over time. It seems that both automakers are able to constantly catch up with global market trends. This may be partly because they are alliance groups, which can easily establish an efficient division of labor between individual firms. The third type is GM and Ford, whose indicators have obviously deteriorated, and accordingly, their global unit sales decreased after 2015. As a result, their global unit sales in 2019 are less than that of 15 years ago, although the global automobile market expanded 1.38 times during the same period. The fourth type is VW, which is an extraordinary case. VW has successfully expanded its global unit sales by intensively penetrating the growing Chinese market.

### Concluding remarks

Finally, let us wrap up our discussion. Our analyses reveal that the global automobile sales, which had dramatically decreased following the Lehman Brothers shock, recovered immediately and subsequently showed steady growth after 2010. In the process, emerging

markets kept growing while many advanced countries apparently recovered their automobile sales. Accordingly, we understand that a well-balanced global marketing strategy is necessary for the survival of major automakers engaged in global competition.

When we look at historical trends of the global market portfolios for the Big Seven automakers, we find differences in global marketing strategy for each automaker. VW is intensively exploiting the Chinese market and realized the No. 1 global sales ranking in 2019; however, it is like flamingo-style batting and is likely to be fragile in economic recession or political turmoil in China. Toyota and Honda have succeeded in rebalancing their global marketing, but Toyota has a problem being behind from the rapid growth of Chinese automobile market. Renault-Nissan and Hyundai-Kia essentially show strength as an alliance group and keep their distribution of business resources effective; however, they also have the same problem as Toyota. GM and Ford failed to effectively distribute their business resources and consequently decreased their global unit sales.

Our study calls for further qualitative research. In particular, we are concerned about what strategic thinking, business philosophy, and unavoidable circumstances exist behind the statistical features observed in this study. We would like to explore these issues in another setting.

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