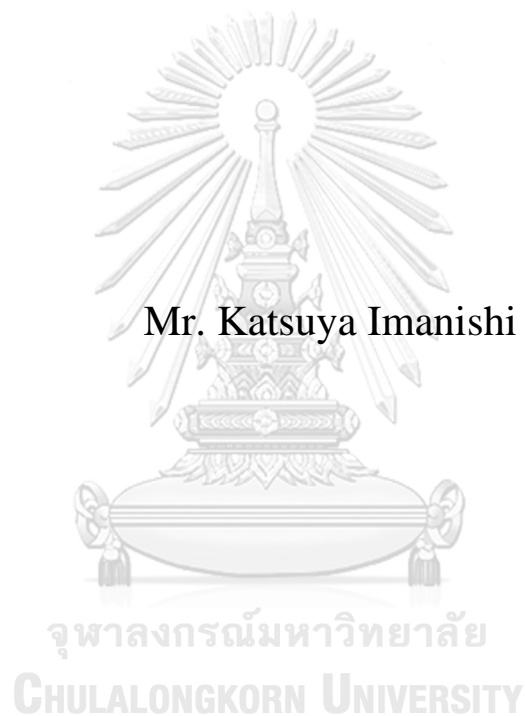


**Can Japan's Horse Racing Industry Sustainably Improve Its  
Competitiveness?- An Analysis Focusing on Economic Factors -**



**An Independent Study Submitted in Partial Fulfillment of the  
Requirements  
for the Degree of Master of Arts in Business and Managerial Economics  
Field of Study of Business and Managerial Economics  
FACULTY OF ECONOMICS  
Chulalongkorn University  
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การวิเคราะห์ทางเศรษฐศาสตร์



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By	Mr. Katsuya Imanishi
Field of Study	Business and Managerial Economics
Thesis Advisor	Assistant Professor SAN SAMPATTAVANIJA, Ph.D.

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Requirement for the Master of Arts

#### INDEPENDENT STUDY COMMITTEE

..... Chairman  
(Assistant Professor NIPIT  
WONGPUNYA, Ph.D.)

..... Advisor  
(Assistant Professor SAN  
SAMPATTAVANIJA, Ph.D.)

..... Examiner  
(Assistant Professor PANUTAT  
SATCHACHAI, Ph.D.)

CHULALONGKORN UNIVERSITY

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We have seen successes of Japanese horses running in overseas races. Behind their success, there were some factors to support the industry, such as Japanese economic scale, technological development, cultural mix. I will examine whether it can remain competitive in the future. Internationalization would be the key factor.



Field of Study:	Business and Managerial Economics	Student's Signature .....
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Katsuya Imanishi



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จุฬาลงกรณ์มหาวิทยาลัย  
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## 1) Introduction

Paris, October 1, 2006. Just as Deep Impact, one of the greatest horses in the history of Japanese horse racing, was passing in front of my eyes, Rail Link from France overtook him. He finished third and was disqualified later due to drug violation. The Prix de l'Arc de Triomphe is known as one of the most prestigious races in the world. Many famous horses have won the race in the long history. Surprisingly, all of them are European-bred horses. Since Speed Symboli in 1969, 26 Japanese horses have competed in the Prix de l'Arc de Triomphe 29 times, finishing second four times, and no Japanese horse has yet won the race. No horse from the United States or Oceania has ever won the race, as well.

The results of the Prix de l'Arc de Triomphe are not necessarily a measure of the level of horse racing, but Europe has always been the most advanced region in turf racing. Horsemen and horse racing fans in Japan are dreaming of the day when they will win the Prix de l'Arc de Triomphe. And they feel that the day is gradually approaching. As proof of this, horses trained in Japan have won Grade 1 (G1) races overseas 50 times, as of the end of 2021. The first horse to win a G1 race was Seeking the Pearl, who won the Prix Maurice de Gest in France in 1998. The following week, Taiki Shuttle won the G1 Prix Jacques Le Marois, also in France. These were proving the evolution of the Japanese horse racing industry, but both horses were born in the United States. The first victory by a Japanese-bred horse was by Stay Gold, who won the Hong Kong Vase in 2001. In recent years, Japanese horses have been consistently successful in Hong Kong, with 24 wins in six races since 2001.

Followed by Hong Kong, they have been very successful in Dubai, winning eight times, including Victoire Pisa's Dubai World Cup victory in 2011. For Australia, while the best Japanese horses has not participated, it has seen an increase in the number of Japanese horses to trip in recent years, with six horses winning there. In Europe, not many horses have traveled there in recent years, and their victories have been slow down, with seven wins. In addition to the two horses mentioned above, El Condor Passer won the Prix de Saint-Cloud in France in 1999, and Agnes World won in England in 1999 and 2000, and Japanese horse has won only two races since then. The first horse to win a G1 in the United States was Cesario, who won the American Oaks in 2005. I was one of the witnesses. Last year, two Japanese horses



accomplished a historical achievement in the U.S. Loves Only You won the BC Filly & Mare Turf and Marche Lorraine won the BC Distaff at the Breeders' Cup, the greatest horse racing festival. It was not a surprise for Loves Only You, since it had already won the Hong Kong G1 and was the first pick in the race, but the Marche Lorraine was a big surprise since a Japanese horse won the G1 dirt race in the U.S. This might prove that it is finally possible for Japanese to produce horses that can win races all over the world in various conditions.

This is where I began to ask myself a simple question. Why have Japanese horses been able to achieve such great results over the past 20 years? And can Japanese horses continue to win the world's biggest races in the future?

I assume there are several approaches to answering these questions. The factors that affect the competitiveness of horse racing are the following

- Bloodlines and breeding
- Breeding techniques from birth until the racehorse is ready to run, such as acclimation, training, environment, food, and medicine.
- Racing techniques, i.e., riding techniques, transportation, harnesses, etc.
- Economic Ecosystem

We might have not seen successes of Japanese horses described so far without the tireless efforts of horsemen. They must have repeatedly challenged overseas, and devised various ways to improve their routine, training environment, and timing and methods of transportation. In this article, I will focus on the economic ecosystem, look at the characteristics of Japanese horse racing, discuss the background that has enabled the evolution of horse racing, and examine whether it can remain competitive in the future.

Chapter 2 looks at the history of horse racing in Japan, Chapter 3 reviews the current structure of horse racing in Japan, and Chapter 4 compares horse racing overseas. Chapter 5 analyzes the JRA as the driving force behind the funding of Japan's horse racing industry together with effect of technologies evolution and role of media, followed by an observation of Japanese cultural mix in Chapter 6. Chapter 7 discusses the future prospects of the industry.

## 2) The History of Horse Racing in Japan

The first European-style horse race in Japan was held in Yokohama in 1860. At the end of the Edo era (1603-1868), the port of Yokohama was opened to foreign settlement, and foreigners imported horse races. The first horse race by Japanese was held in 1870. At that time, one of the objectives was to show the progress of civilization to Western countries by imitating Western culture. However, at that time, horse races organized by the Japanese did not sell horse tickets, and due to financial constraints, they were not able to achieve significant development. (Takahashi, 2018)

On the other hand, in Negishi, Yokohama, where horse races were held mainly by the British, horse races were actively held as a social event. The Meiji government, led by the emperor, began to utilize the racecourse as part of its diplomacy. The Meiji Emperor sponsored Mikado's Vase Race to encourage horse racing at Negishi Racecourse, and later, in 1905, the Emperor's Cup was established in response to a request from the British Ambassador. Although this was a diplomatic and military effort, it is noteworthy that the Emperor of Japan encouraged horse racing, which included elements of gambling, because it was recognized as a national project. Since 1937, the Emperor's Cup has been held in Tokyo in the fall and in Hanshin (and later Kyoto) in the spring as the Emperor's Prize. Although it was temporarily suspended during World War II, it continues to be held up to now. (Takahashi, 2020)

It was the Sino-Japanese War of 1894 and the Russo-Japanese War of 1905 that led to putting intensive efforts to produce horses. In the first phase, stallion farms were established in Tokachi, Hidaka (both in Hokkaido), and Ou (Tohoku). In the second phase, the horse producing regions of the country were divided into four types of roles for military horses, and a reinforcement plan was established for each region. At that time, Hidaka was designated to strengthen the breeding of Thoroughbreds, trotters, Anglo-Arabs, and Percherons, and this became the starting point for Hidaka to become a major Thoroughbred production area. (Iwasaki, 2012) At the same time, in 1905, in order to raise money for horse breeding, the Meiji government tacitly approved the sale of horse tickets unofficially, and in 1906, the Emperor's Cup was held at Ikegami Racecourse (Tokyo Horseracing Club), the first horse race to be held by a Japanese sponsor. (Takahashi, 2019)

However, after 15 horse racing clubs across the country applied for and were granted licenses by the government following the tacit approval of the sale of horse tickets in 1905, a number of operational problems arose, social mores were disturbed, and a social tendency to eliminate horse racing became the majority. Then, in 1908, the new Penal Code was enacted, and the sale of horse tickets was banned. With the loss of income from horse tickets, some horse racing clubs began to experience operational difficulties, so they were reorganized into 11 clubs across the country. Thereafter, horse racing was subsidized by the government until the enactment of the Horse Racing Law in 1923. During this period, as an alternative arrangement, "prize horse races" were held, where winning tickets were sold, and the winners received goods of prizes, instead of pretty cash.

In 1936, the Japan Racing Association (different organization from existing JRA) was established, and horse racing clubs around the country were dissolved. In 1944 and 1945, horse races were held under the concept of ability tests without the sale of tickets.

After the war, GHQ (General Headquarter) pointed out that this violated the Anti-Monopoly Law, and the Japan Racing Association was dissolved and became state-run. In 1954, the Japan Racing Association Act was enacted and the Japan Racing Association (JRA), a state-owned enterprise, was established, which has been supporting the development of Japanese horse racing today.

In 1946, the Local Horse Racing Law was enacted, and local horse racing has been operated by organizations under the jurisdiction of prefectural governments.

### 3) The Structure of Horse Racing in Japan

Horse racing in Japan is divided into two organizations: JRA, which is under the jurisdiction of the Ministry of Agriculture, Forestry and Fisheries, and National Association of Racing (NAR), which is under the jurisdiction of the prefectural governments. Most of the horses that run in overseas races belong to JRA. The results of interchange races between JRA and NAR show that the horses belonging to JRA are overwhelmingly successful. Due to the disparity in prize money, most of the horses that are successful in the local races are transferred to JRA. The relationship

between JRA and NAR is similar to that between the Majors and the Minors in baseball in U.S.

In this chapter, I will focus on JRA. JRA holds ten tracks (four major tracks in Tokyo, Nakayama, Hanshin, and Kyoto; four local tracks in Niigata, Fukushima, Chukyo, and Kokura; and two tracks in Hokkaido, Sapporo and Hakodate). In principle, the races are held at two to three tracks every Saturday and Sunday, with the combination of tracks used changing every four weeks. Up to 12 races are held per racecourse per day during the daytime.

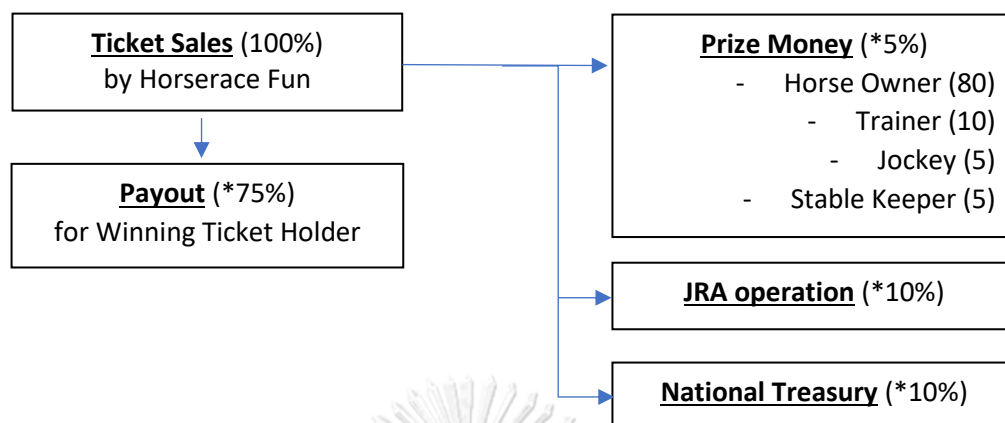
Horse tickets are sold at race tracks, non-race tracks on the day, off-track ticket booths (called WINS) mainly in the center of major cities, and also by telephone and the Internet. Horse tickets are purchased at manned ticket windows or vending machines in exchange for cash by marking the required information on a mark-sheet paper. Over the phone or on the Internet, the purchaser's bank account is registered in advance, and the cash is credited or debited.

The types of tickets include Win, Place (Show), Bracket Quinella, Quinella, Quinella Place, Exacta, Trio, Trifecta (Tierce), Pick 5. They were introduced at different times in the history, and the most popular types vary from era to era, but the trifecta is currently the most popular.

Students and minors are forbidden by law to buy horse tickets, but any adult can buy them. They are sold starting at 100 yen, and admission to the racecourse is also cheap, ranging from 100 to 200 yen for normal seats, making it possible for people of all income levels to participate.

In general, 75% of the sale amount of horse tickets are paid back to winners of ticket holders as payoff, 10% is paid to the national treasury (a type of tax), and 5%-6% is paid as prize money (80% paid to the owner, 10% to the trainer, 5% to the jockey, and 5% to the stable keeper of prize money). The remaining 10% or less is used to cover JRA's operating expenses, i.e., the cost of holding horse races, and any surplus is paid into the national treasury again.

[Figure 1]



The entities directly involved in horse racing include the JRA, producers, trainers, assistant trainers, stable keepers, and jockeys, and so on.

Producers run farms and own mares, mainly in Hokkaido, and select stallions and breed them between April and June, considering their pedigree and budget. After a foal is born, they sell the foal to the horse owner, either on the OTC (over the counter) or on the market, and earn money. The number of yearlings traded accounts for about 3% of the total number of births, and 30-40% are traded in their 1-year-old. The ratio of two-year-olds traded is about 3% of the universe. The trading price is the highest for yearlings, and keep declining as the foals increasing with age. Horses that are not traded on the market are sometimes sold on OTC, or the producer may become the owner of the horse. This is called an owner-breeder. In the past, the majority of transactions were done on OTC, but in recent years, more and more high-quality horses have been listed on the market. The number of market transactions has been increasing every year, and the prices tend to be higher.

There has also been a significant change in the scale of production farms. In the past, most of them were small farms with less than 10 mares, but it has become difficult for them to compete with the larger farms in terms of both financial resources and the environment in which the foals are raised after birth. Finally, many of them have gone out of business. On the other hand, the number of large-scale producers with more than 21 mares is increasing every year, which is a characteristic of the increasing institutionalization. (2020, Thoroughbred Statistics)

Trainers are required to pass a trainer examination conducted by the government, to be able to obtain a license. There 194 trainers in JRA as of end of year 2020. Training is conducted at huge training centers located in Miho, Ibaraki Prefecture, in the Kanto region and Ritto, Shiga Prefecture, in the Kansai region. At the training centers, trainers train horses, appointed by owners. Many trainers used to be jockeys or horse racing professionals who change their careers to become trainers, but some pass the trainer exam from a completely different background. To start a career as a trainer, one needs to rent a stable from JRA. Because of the controlled number of stables, less than ten people can become trainers each year. Main incomes of trainers are the training fee paid by the owner of the horse, and also, they earn 10% of the prize money when the horse runs in a race. Trainers who are successful can earn a high income, but if their performance is not good enough, it becomes difficult for owners to entrust them with their horses, and they are often forced to close their business. Assistant trainers work in stables employed by trainers. Their main role is to ride horses in training. They must be able to have knowledges and skills, which enable them to take care of horses, and they must pass an exam to become an assistant trainer. In the absence of a trainer, an assistant trainer may give training instructions and manage stables. In many cases, jockeys become assistant trainers, and some of them go on to become trainers.

Jockeys ride horses in races as professionals. JRA has 135 jockeys (end of year 2020), some of whom belong to stables and some of whom are freelance. Stable jockeys earn their wages from the stables and the prize money they receive for riding in races. Freelance jockeys earn their income mainly from prize money, but they also get paid by trainers for riding in training. The more skilled jockeys are often offered by owners and trainers to ride leading horses, which allows them to achieve even higher results. On the other hand, jockeys with inferior skills are less likely to be offered to ride, which limits the number of races they can ride and the opportunities they have to show their skills. As a result, the difference in skill is amplified, and the income of a star jockey can be as high as several hundred million yen a year in prize money alone, while the opposite is not. It can be said that this is a profession with an extremely large income disparity.

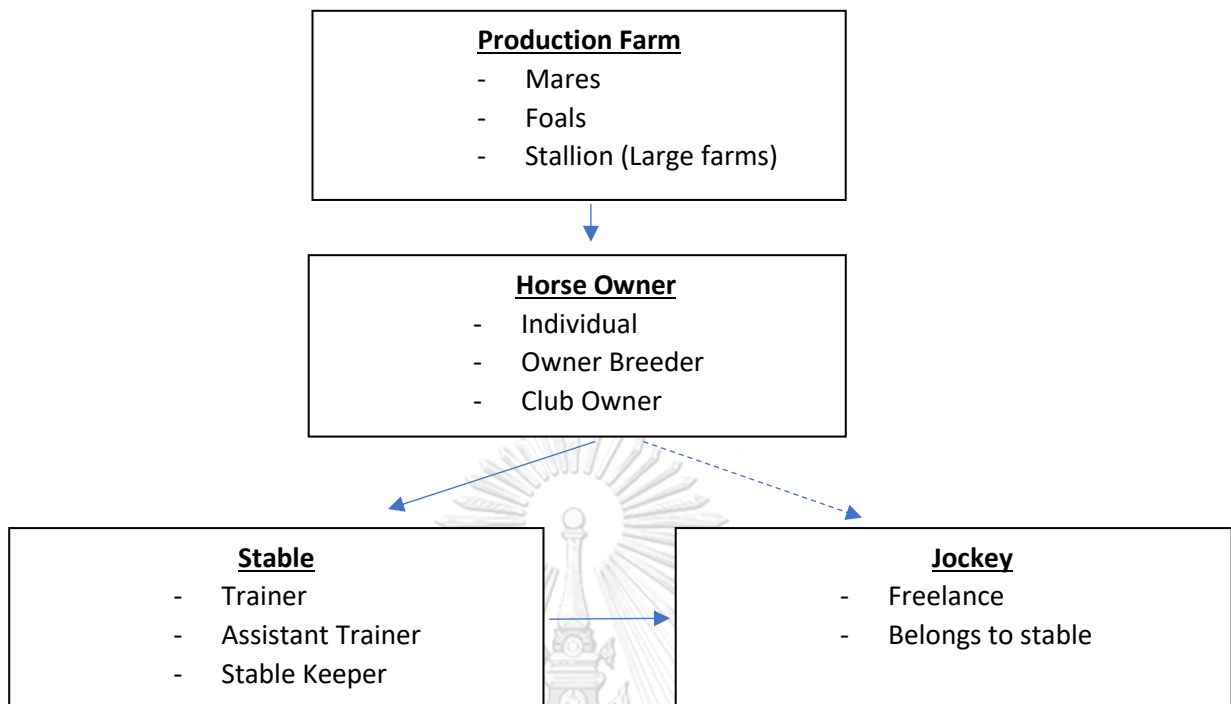
The majority of horse owners are individuals who own a small number of horses, but a few large ranchers and some very wealthy people own a large number of expensive horses. Most of the horses that win big races are owned by a few horse owners. In some cases, the individual horse owners are owning horses as their business, but in many cases, they are just enjoying their status as horse owners, dreaming of winning the big races, regardless of the profit or loss. Also, as a personal business, they could take advantage of being able to deduct the cost of purchasing and maintaining the horse as an expense of their personal income, against the income they earn from other businesses. This can be interpreted as the government subsidizing some of the costs of owning a horse by reducing taxes. Most horse owners who own a large number of horses do so as a business. They also produce and train horses, own horses, breed them to win big races. They use performed horses as stallions and mares to produce even stronger horses. There are 2599 owners registered with JRA as of end of year 2020.

In addition to the above, in recent years, the presence of club horse owners has been increasing. (Iwasaki, 2013) A club horse owner is like a listed company in the general economy. The management of the club is mainly carried out by producers who run large-scale operations. The investors are mainly ordinary fans who do not have the income or assets to become individual horse owners, but who want to be involved in horse racing as horse owners. This system is regulated by the Financial Services Agency as well as the Ministry of Agriculture, Forestry and Fisheries because of its aspect as a financial product. Management and capital are separated, with the entity responsible for management being called the club corporation and the entity in which investors invest being called the Aibakai (meaning Horse lovers Club in Japanese). People who want to become a horse owner sign a silent partnership contract with the Aibakai to become a member, purchasing horses through joint investment. The investment is made by dividing the purchase cost of one horse into 40 to 500 units. In addition to the purchase cost, members are responsible for the admission fee, monthly membership fee, and the divided cost of maintaining the horse. Aiba-kai are not qualified as horse owners, therefore, do not have the right to visit the owner's seat at the racecourse or the training center. They also do not have opportunities in negotiations with trainers or in the selection of jockeys. The first clubs were

established in 1968, but club system did not penetrate widely until around 1990, when economic growth accelerated. In the 21st century as major producers began to supply quality horses to specific clubs, the horses of the clubs began to achieve remarkable results, and the number of ordinary horse racing fans who wanted to join the leading clubs increased greatly. Some clubs have a system whereby if a horse receives a large number of demands for purchase, it is not only allocated by lottery, but is also given priority to investors who have made a large number of purchases in the past and have made a significant contribution to the club. As a result, new investors are bidding on horses that are not popular on the list, and are purchasing them based on the idea of prioritizing the participation first. It may be the reason why fewer horses remain unsold. This trend may be having a positive effect on the producers as well. To avoid any misunderstanding, I would like to add that horses that are popular at the time of purchase do not always win big races. Sometimes great horses emerge out of horses that could have remained unsold, so there is not necessarily an advantage or disadvantage. From the producers' point of view, it can be said that they have succeeded in creating a broader base of investors by bringing in the concept of separation of management and capital that underpins the capitalist economy. Not only ultra-wealthy individual horse owners are the target to sell the horses they produce. Many of these investors are also consumers who buy horse tickets. The club system is revolutionary as it has expanded the core fan base and broadened the base of consumers who constantly participate in horse racing through cross-selling. In the past ten years, the top three positions in the horse-owner earning rankings have always been held by club corporations, and in 2021, six of the top ten positions were held by club corporations.



[Figure 2]



Since the inception of JRA, horseracing has taken advantage of synergies with various media and the early adoption of cutting-edge technology to operate horseracing and improve fan services. The aspects of Japan's other industries that have been advanced have supported the development of the horse racing industry, putting it in an advantageous position compared to other countries. This point will be discussed in Chapter 5 and 6.

#### 4) Comparison with other countries

The birthplace of modern horse racing is England, where the first permanent racecourse, Chester Racecourse, was established in 1539, and racecourses continued to be built in various parts of the country. Horse racing in England developed as a pastime for royalty and nobility, but later became popular in the society of the aristocracy and gentry. The St. Leger, one of the big races, was established in 1776, the Oaks in 1779, and the Derby in 1780. In 1791, the General Stud Book was published. (Kagitani, 2016) In 1961, the International Federation of Horseracing Authority (IFHA) was established with the United States, France, and Ireland to contribute to the development of horseracing around the world through rule-making

and monitoring, measures to ensure the health and safety of horses and jockeys, exchanges between Authorities, and proposals on legal systems to other countries. 65 Authorities in 60 countries are members of the IFHA as of 2019. England is always leading in horse race industry in the world, and still holds famous races. The ratio of flat races to hurdle races is about 2:1, with the majority of races being on turf.

In Ireland, the Turf Club was established in 1784, following the British Jockey Club, and a racing calendar began to be published in 1790. In the 19th century, many races were held with prizes and awards from the British Royal Family, including a visit to Curragh by King George VI in 1821. Ireland is said to be the birthplace of hurdle race, which has been held since 1752. Even today, there are slightly more hurdle races than flat races. (JRA, IFHA Website) Ireland holds some prestigious races, but its presence as a producing country is very significant. Ireland is the third largest producer of horses in the world after the United States and Australia, and has produced many world-famous horses. The country is home to Coolmore, one of the world's leading producers, and a ranch owned by His Highness Sheikh Mohammed of Dubai.

As mentioned earlier, France is one of the world's leading countries in horse racing, hosting the Prix de l'Arc de Triomphe, one of the world's most prestigious races. It is said that racehorses were brought from England in the 17th century. Horse racing began, but the French aristocracy at that time preferred hunting and were not interested in breeding racehorses. In 1805, Napoleon established the system of horse racing, and in 1833, the association for the improvement and encouragement of the French horse breed was founded. In 1834, the first horse race organized by the association was held in Chantilly. The Prix de l'Arc de Triomphe was established in 1920. Both production and racing are flourishing, and many famous horses have been produced. (JRA)

American horse racing is strongly connected to the history of the British colonies. In the background, the power of horses was necessary to cultivate land. British immigrants brought horse racing to Virginia in the early 17th century, and it spread to other parts of the country. The turning point was the Civil War, which began in 1861. As it became difficult to produce and race horses in the areas affected by the Civil War, many people and horses moved to Kentucky, which had declared its neutrality. In addition, the subsequent prohibition of gambling in many states attracted even

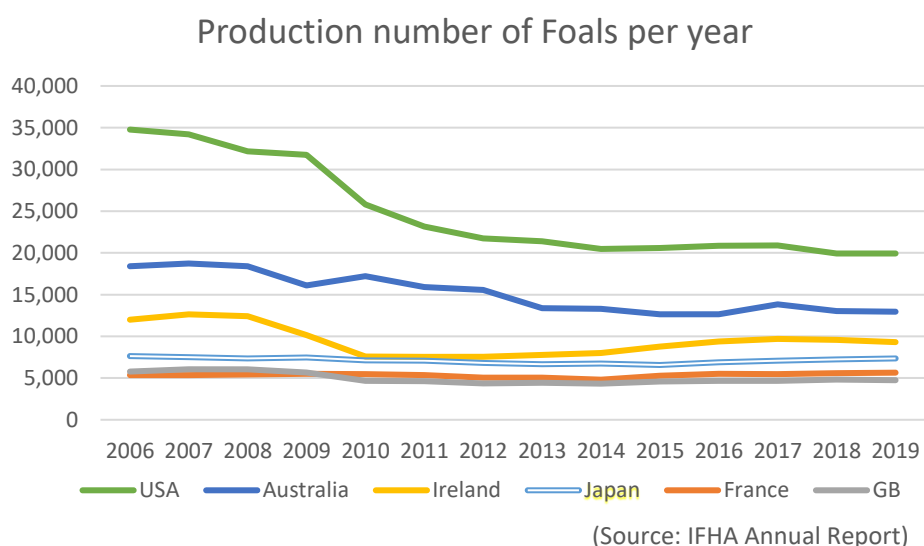
more people and horses to Kentucky, where gambling was allowed. Even today, Kentucky plays a central role as a production center. In the United States, each state has its own horse racing laws, and horse racing organizers are private companies. The people who participate in horse racing are not the aristocracy of Europe, but the general public. The door is also open to those involved in horse racing. The U.S. has made its presence felt through the emergence of great stallions that have had an overwhelming impact on the breeding of horses, such as Northern Dancer, who was born in 1961 in Canada and run mainly in U.S., and whose children and grandchildren continue to be very successful. Sunday Silence, born in 1986, was imported to Japan. His children and grandchildren have achieved remarkable success. By the end of 2021, 41 Japanese bred horses had won Grade 1 races overseas (50 wins in total), including Stay Gold, who won the Hong Kong Vase in 2001. Among them, 30 horses have Sunday Silence blood in their veins. The rest are six foreign-bred horses and one imported horse (mare imported to Japan after conception and produced in Japan), and there are only four horses without Sunday Silence blood. (Compiled by the author based on the JRA Database) Horse racing in Japan today cannot be described without mentioning Sunday Silence, not to mention Northern Dancer. American-bred horses have changed the pedigree of horse racing in Japan and the world for half a century. Australia also has a thriving horse racing and breeding industry. The first horse race in Australia was held by the British in Sydney, New South Wales in 1810, and the Australian Jockey Club was established in 1842. In Victoria, official horse racing was held in 1838, the Melbourne Cup, still a major national event, was founded in 1861, and the Victoria Racing Club was established in 1864. Horse racing is governed by the states, but there is a national governing body, Racing Australia, which was established in 2015. The Melbourne Cup is contested over a long distance of 3200 meters, but the overall racing structure prioritizes shorter distances in Australia. Majority of star horses is in shorter distances category. (JRA)

Although Hong Kong does not produce horses at all, it has been gaining prominence in recent years as a place where the world's top horses and jockeys gather. The first recorded horse race was held in 1846, around the time of British settlement, the Hong Kong Derby was held in 1873, the Hong Kong Jockey Club was organized in 1884. In 1960, the club was recognized by the British Royal Family and became the Royal

Hong Kong Jockey Club. In 1988, the Hong Kong Invitational Cup was held with horses invited from Malaysia and Singapore. This was the origin of the current Hong Kong International Cup. It was upgraded to International G2 in 1994 and to International G1 in 1999, and is now one of the world's year-end horse racing festivals. In 2016, Hong Kong became a Part 1 country of the IFHA. As we will see later, it ranks third in terms of ticket sales after Japan and the United States, and has the highest prize money per race in the world.

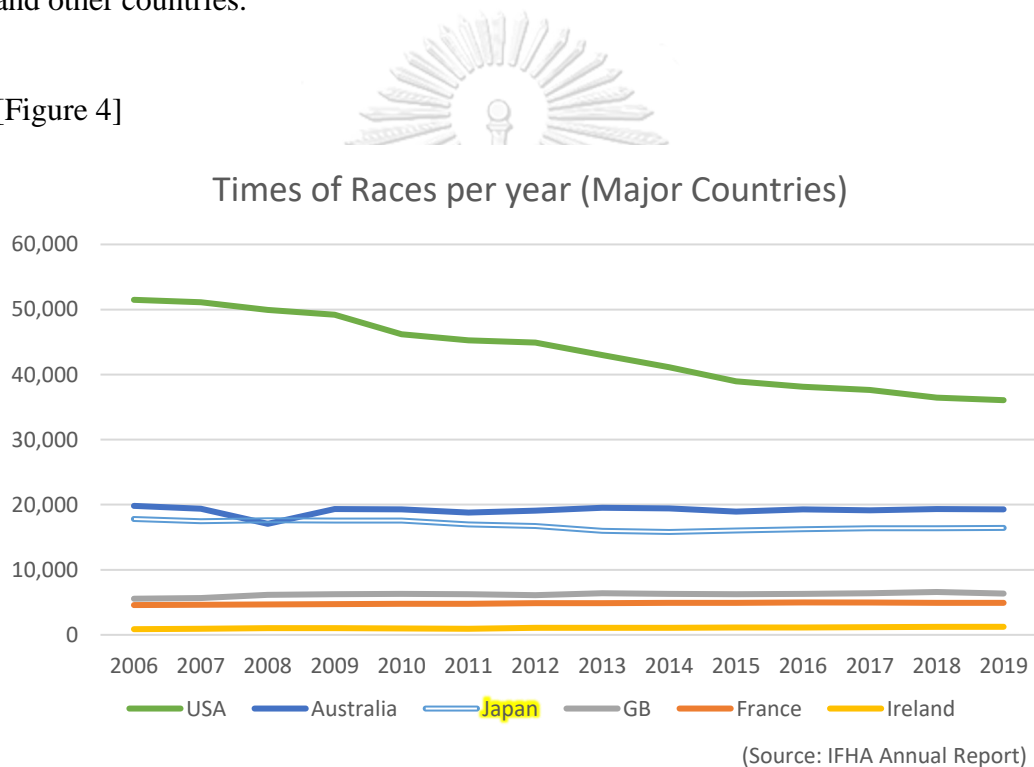
Which countries are producing the most racehorses? Figure 3 shows the number of horses produced in major countries from 2006 to 2019. In order of number of horses produced, the United States, Australia, Ireland, Japan, France, and GB are in the highest, with no significant change in ranking. It can be seen that the number of horses produced in the U.S. and Australia has been decreasing significantly. In addition, the number of foals produced has dropped significantly in the years since 2009, due to the Financial Crisis. The IFHA pointed out that production was stagnant for financial reasons, especially in the US, Ireland and GB. On the other hand, we can see that Japan and France continue to have a stable supply.

[Figure 3]



Let's take a look at the trend in the number of races. Figure 4 shows the number of flat races in major countries. As with the number of horses produced, the top two countries are the U.S. and Australia, but the number of races in the U.S. is decreasing in proportion to the decrease in the number of horses produced, while Australia maintains a stable number of races. Similarly, the number of races in Japan has been stable. In Europe, on the other hand, the situation is different from that of the number of horses produced, with GB, France, and Ireland in that order. This is due to the fact that Ireland is a large producer, and those horses are exported and raced in GB, France, and other countries.

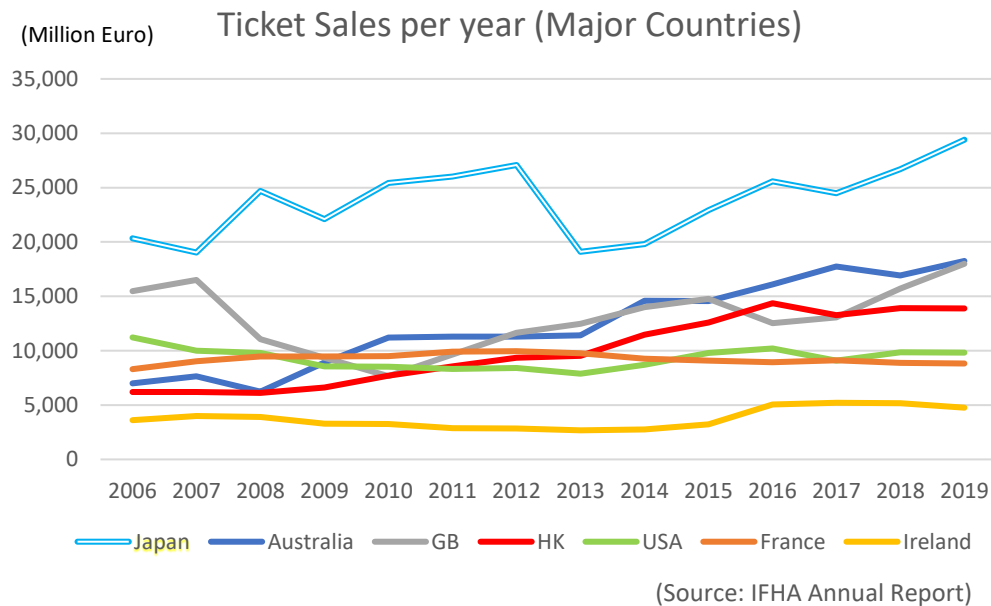
[Figure 4]



Let's compare these countries from an economic standpoint. Figure 5 shows the sales of horse tickets in seven countries, including Hong Kong. For countries where only the organizers sell tickets, its sales amount is shown, and for countries where bookmakers sell tickets in addition to the organizers, the total amount is shown. Since the currency is based in Euro, it is necessary to take into account the effect of exchange rates except for France and Ireland. For example, Japan and GB show large upward and downward fluctuations from year to year, but in their own currencies, the changes are smoother. Since one of the objectives of this paper is to compare

international competitiveness, I believe that it is meaningful to compare on the same currency basis in this section.

[Figure 5]

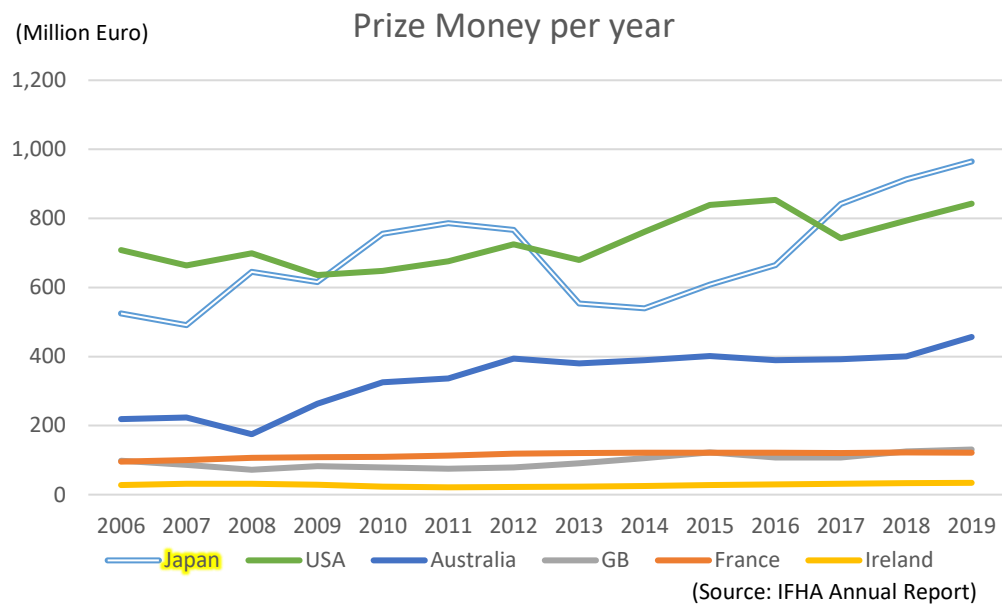


As shown in the figure, Japan has a large lead over Australia and GB in horse racing sales. As will be discussed later, Japan's horse ticket sales peaked in 1997 and continued to decline, but bottomed out in 2011 and since then have been increasing in yen terms. Australia's horse ticket sales have steadily increased over the past 15 years. GB's competitiveness declined significantly during the Financial Crisis, partly due to exchange rate effects, but has been rising since then. Hong Kong has also been increasing its presence in recent years. Although the number of races is extremely small compared to other countries, the sales of horse tickets compete with the top countries. As mentioned earlier, this has contributed greatly to the development of the industry. Although the U.S. is the world's largest producer of horses and holds the largest number of races, it ranks fifth in terms of horse ticket sales. Although the U.S. has produced some of the world's most famous horses in the past, it is not economically competitive in the horse racing industry. In recent years, the lack of success of American horses in international interchange races may be due to

economic factors. Along with the number of horses produced and the number of races run, France has also seen a steady increase in ticket sales.

Let's take a look at the prize money. With the exception of countries such as Dubai and Saudi Arabia, where the sale of horse tickets is religiously forbidden, prize money is mainly funded by a portion of ticket sales. Figure 6 shows the total amount of prize money paid out in a year. The figures are shown in Euro, so there is an effect of exchange rates, but Japan is also the world's largest in terms of total prize money. This is followed by the U.S. and Australia, and the total amount of prize money paid in Europe is relatively low. From this graph, it can be read that the payback ratio to the sales of horse tickets in the U.S. is high. Conversely, it can be said that the organizers, the government, and other parties have less of a share in this structure, making it easier to squeeze management. It can be assumed that there are fewer resources to provide government support to producers. It should be added that the U.S. has not reported its payback percentage to IFHA since 2009, so that it may be necessary to conduct further research on the ground. In Europe, the quality level of horses is high, but the prize money is not high, so there is an incentive to travel to other countries, paying higher prize money. There is also an incentive to produce high quality horses as stallions and mares, and sell them to other countries to make a business out of it, rather than to earn prize money by running races.

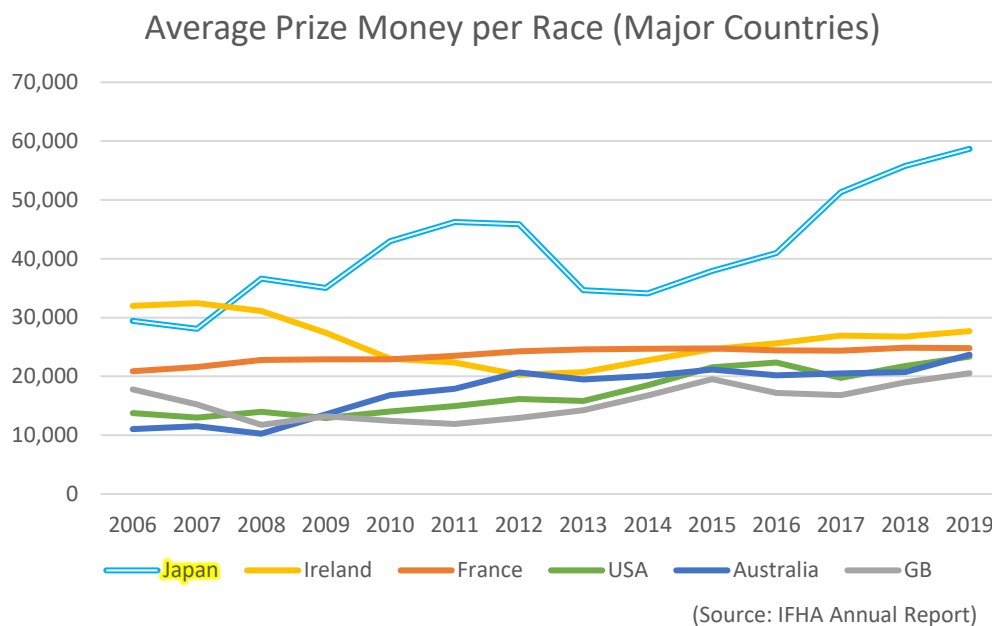
[Figure 6]



Let's take a look at the countries with the highest prize money per race. Please see Figure 7. This is the average amount of prize money per race for the six major countries. In this figure, Japan dominates over the other countries. The other five countries are not so different. This indicates that even if Japan sets a higher investment amount per horse than other countries, there is a higher possibility that it will be able to recover. Furthermore, the room for investment in stallions and mares is much larger than in other countries. This is a huge advantage for the Japanese horse racing industry.



[Figure 7]



However, Japan is not the world's largest in terms of prize money per race. According to 2019 data, Hong Kong is the world's largest with 184,518 euros, South Korea is second with 86,632 euros, the UAE is third with 59,199 euros, and Japan is fourth with 58,673 euros, followed by Singapore. However, Hong Kong's prize money is worthy of special mention due to its recent rise. (Figure 8) Although the current level of racehorses in South Korea is low as seen results in interexchange races, the country has begun to invest in horse racing by purchasing Japanese horses and others. As with semiconductors, electrical appliances, etc., the time may come in the near future when Japan will be used as a model to compete with Japan and others. In the UAE, the royal family of Dubai is a world class horse owner and breeder, and has expanded into production. In 2010, the UAE opened the Meydan Racecourse and continues to invest in horse racing industry. I went to see the Dubai World Cup in the first year, held at Meydan in 2010. It is a tremendously large racecourse with advanced facilities, which is definitely one of the best in the world.

[Figure 8]

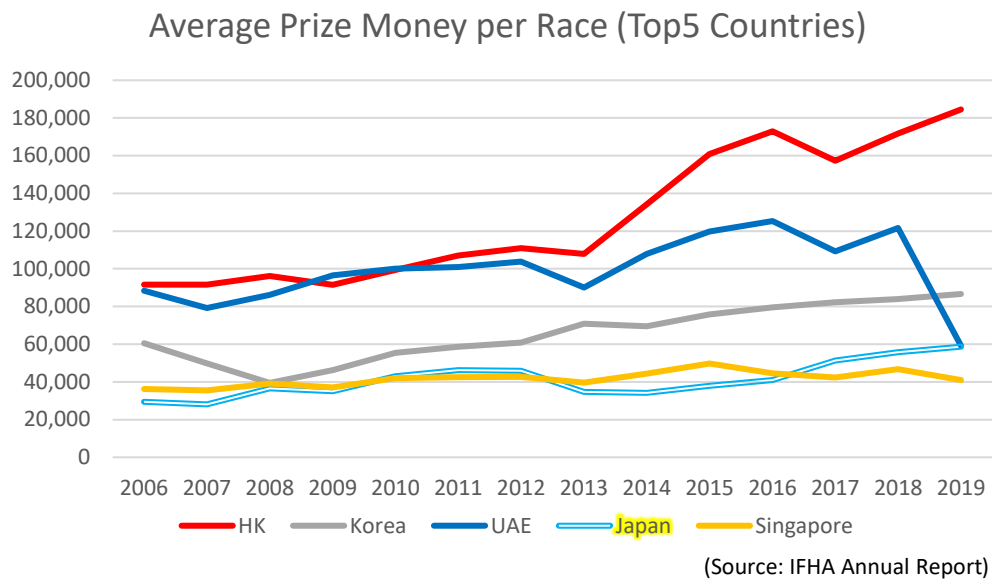
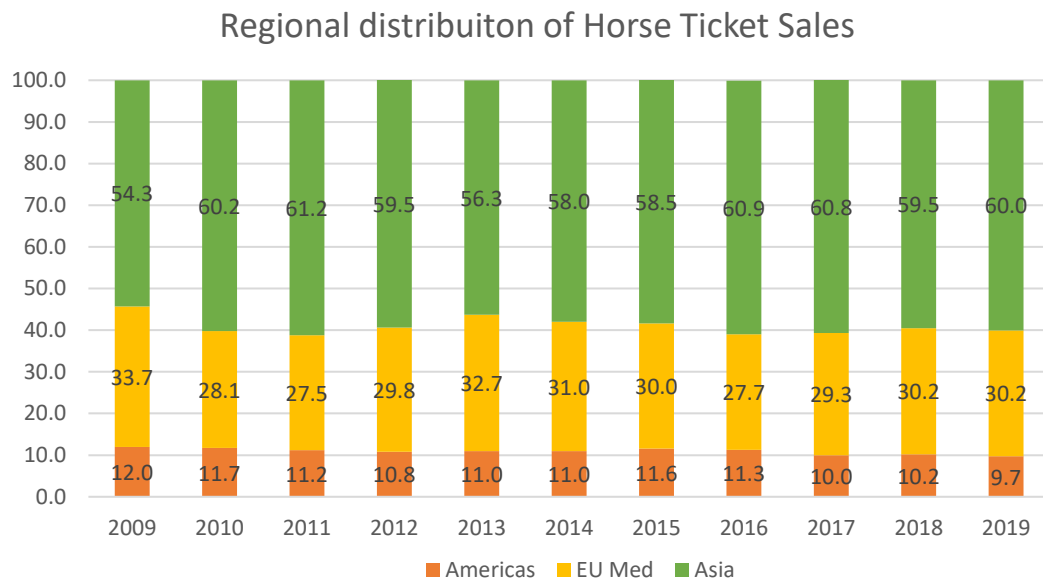


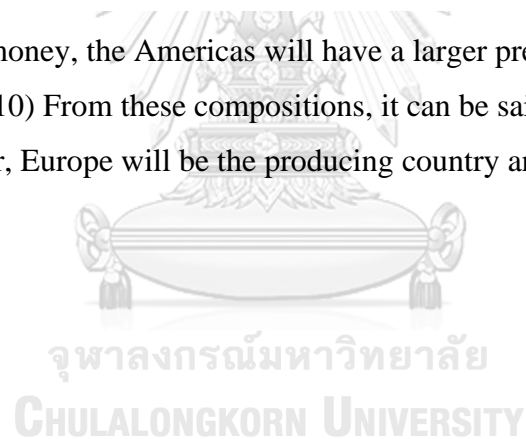
Figure 9 shows a graph of horse ticket sales by region (Asia, Europe, and the Americas). Asia accounts for 60% of the total, showing the size of the economic base of the horse racing industry, including Japan and Hong Kong. There is small change in Europe and the Americas, with 30% and 10%, respectively. If horses are viewed as an international commodity, Asia has the overwhelming economic potential to purchase horses.

[Figure 9]

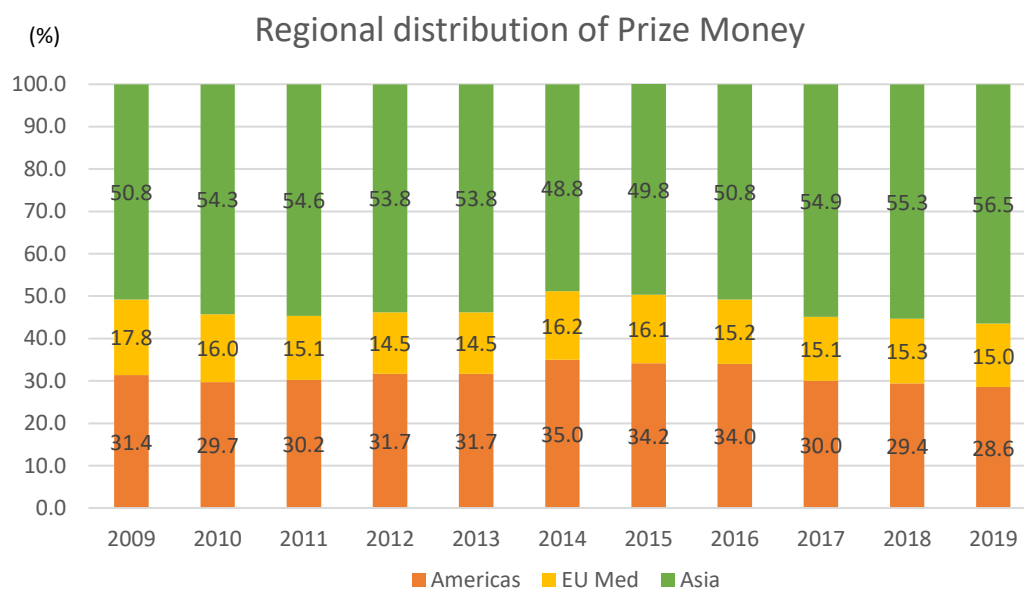


(Source: IFHA Annual Report)

In terms of prize money, the Americas will have a larger presence, and Europe will fall back. (Figure 10) From these compositions, it can be said that as long as European horses are superior, Europe will be the producing country and Asia the consuming country.



[Figure 10]



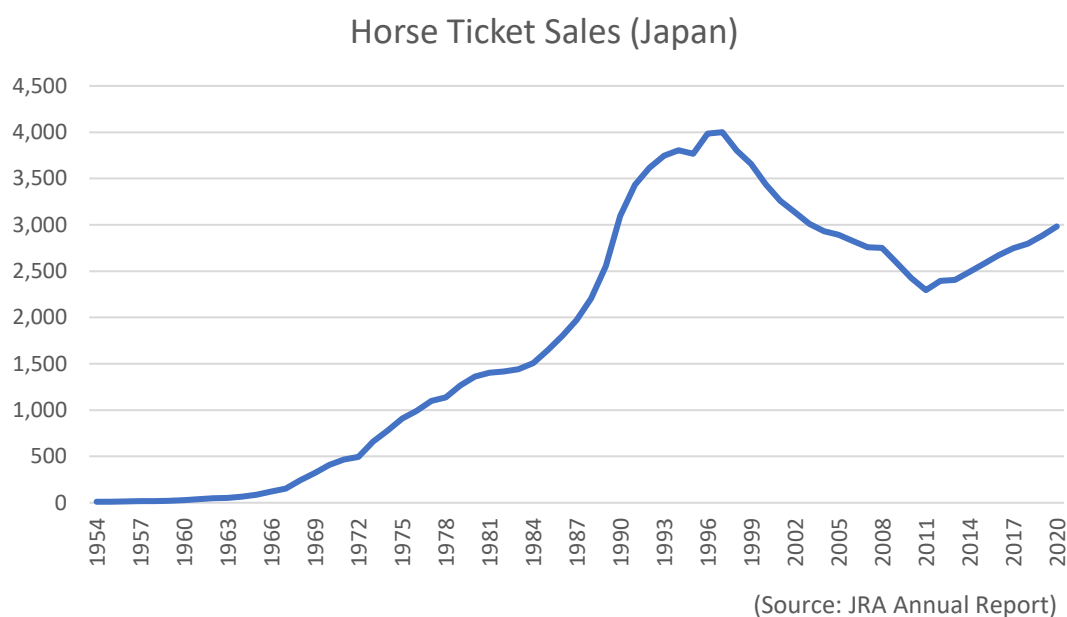
Horse racing, which began in GB, spread to many countries around the world, especially in GB's colonies, was imported from the GB to Japan when Japan opened its doors to the world in 19<sup>th</sup> century. Japan has the shortest history compared to the major horse racing countries. However, with the development of the Japanese economy as a background, the uniqueness of horse racing as a form of entertainment, the creation of a large number of horse racing fans, and the evolution of the horse racing industry itself, a synergistic effect with other cultures, were created, resulting in the world's largest sales of horse tickets. It became the engine for the development of the industry. In the next section, I will focus on the JRA, which is in charge of organizing horse races, selling tickets, and promoting the circulation of funds in the horse racing industry by taking advantage of technological evolution in Japan.

##### 5) JRA continues to evolve by taking advantage of technological evolution

As mentioned above, JRA was established under the Japan Racing Association Law enacted in 1954. Sales of horse tickets exceeded 4 trillion yen in 1997, declined to below 2.3 trillion yen in 2011 later, and then recovered to 3 trillion yen in 2020 for the first time in 17 years since 2003. It is truly a huge organization with high sales. In

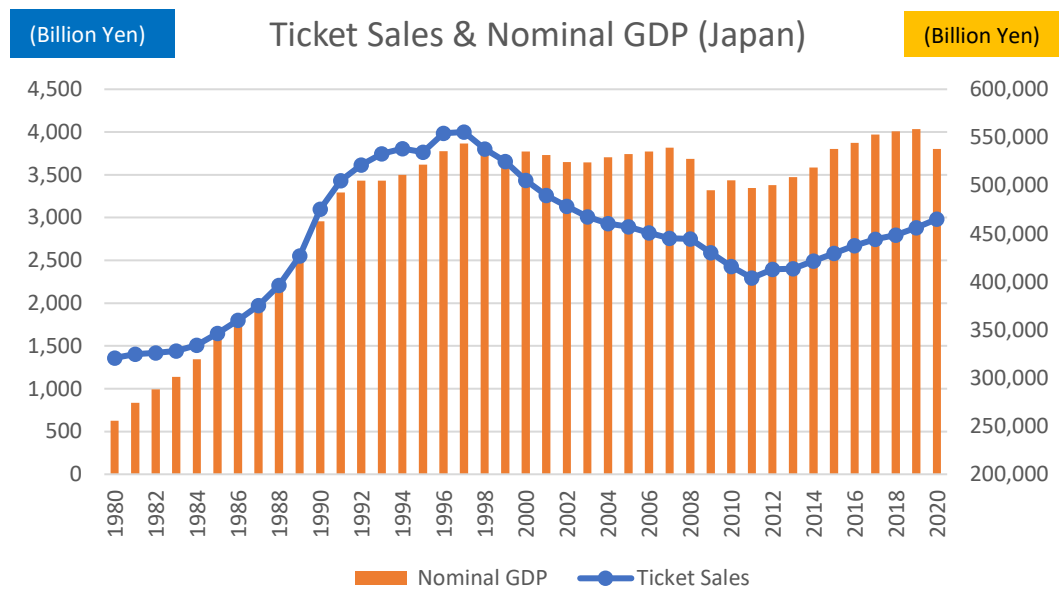
recent years, the JRA has been increasing its prize money year after year in response to an increase in the number of races with high prize money on offer around the world.

[Figure 11]



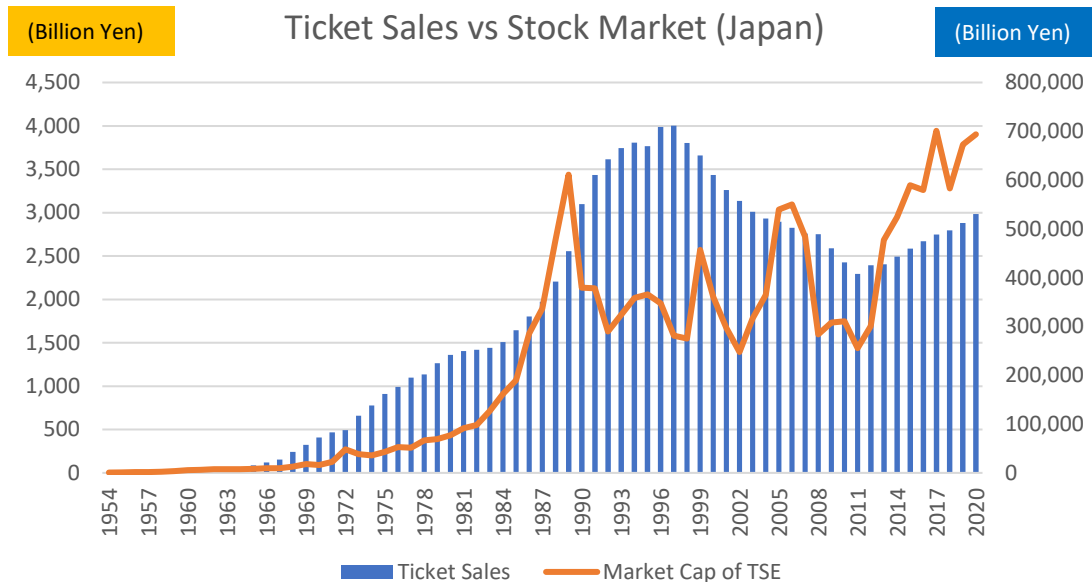
JRA's horse ticket sales increased along with the growth of the Japanese economy, but when the economy began to stagnate, it also affected horse ticket sales. Figure 12 shows a comparison of nominal GDP and horse ticket sales from 1980 to 2020. Nominal GDP grew rapidly in the 1980s, but slowed down in the 1990s, peaking in 1997, and then stopped growing for the next 20 years. The government has been forced to respond to a variety of challenges, including the bad debt crisis of 1998-2003, the global financial crisis of 2008-2009, the reconstruction of the Great East Japan Earthquake in 2011, and the Covid-19 pandemic of 2020-present, by increasing government spending, which in turn has supported GDP. If the government had spent very little, the size of the Japanese economy would have been noticeably smaller than it is today. In terms of the correlation with horse ticket sales, in the 1980s, horse ticket sales grew rapidly along with economic growth. In order for the JRA to continue to grow, it is a prerequisite that Japan's economic base is strong.

[Figure 12]



Next, I would like to look at the trend of the market capitalization of the entire Japanese stock market and the sales of horse tickets. Figure 13 compares them from 1954 to 2020. The difference with GDP is that the market capitalization of the TSE as a whole peaked in 1989 and has been below that level for a long time, but has started to exceed it in recent years. The asset effect is expected to raise the level of the economy.

[Figure 13]



The growth of JRA has not been due merely to economic development. One reason is that the JRA has used its abundant funds to incorporate innovations from Japan's high-tech industry, one after another, to constantly improve the convenience of its services.

Major initiatives were as follows.

1957: Introduction of the Totalizer. Prior to this, odds had been calculated and displayed on the blackboard by manpower. With the introduction of the Totalizer, the system was able to calculate the sales of horse tickets, but the display of sales was still done manually.

1963: Cable television broadcasting began at the racecourse.

1965: Automatic timekeeping equipment introduced.

1966: Totalizer system introduced. Information such as the number of tickets sold, estimated odds, and refunds were processed in real time and automatically displayed on the bulletin board inside the racecourse. Payoff could also be made quickly.

1973: Cable TV broadcasting at the racecourse was converted to color.

1973: Automatic ticket vending machines were introduced.

1974: Telephone voting was introduced on a trial basis; full-scale operation began in 1976.

1976: The nationwide online system for horse tickets introduced.

1984: Ultra-large-screen televisions (known as Turf Vision) are installed at racetracks.

1990: Mark-sheet-based ticketing system introduced.

2000: Horseracing tickets can be purchased through special-made cell phone terminals.

2002: Horse ticket sales via the Internet (bank accounts had to be registered in advance).

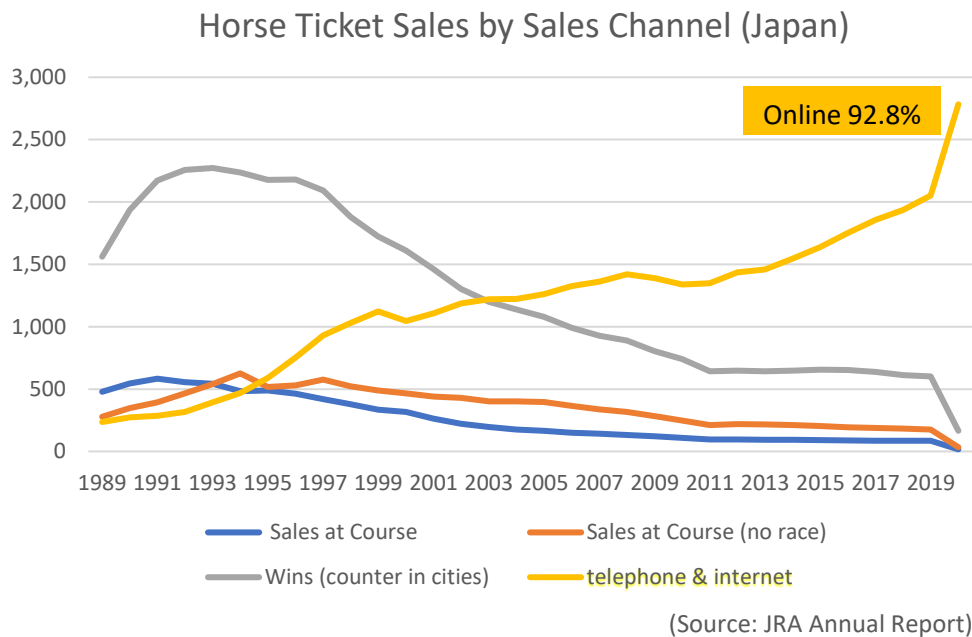
2005: Launched a service that allows customers to purchase and pay for horse tickets using Internet banking.

2006: The world's largest multi-turf vision system was installed at Tokyo Racecourse.

As described above, the JRA began using systems to improve the efficiency of its operations in the latter half of 1950, just after its establishment. In 1973, vending machines were introduced to reduce labor costs and create an environment where horse tickets could be purchased quickly. Huge screens were installed to allow fans to watch the race on a large screen no matter where they were watching the race at the large racecourse. From 2000 onward, horse tickets were sold via cell phones and the Internet. As a result, while sales at racetracks and WINS have continued to decline, online ticket sales have continued to increase. The impact of Covid-19 pandemic has accelerated this trend, with online sales accounting for 92.8% of total sales by 2020. (Figure 14) In the year of 2020, JRA added more than 960,000 new online members, bringing the total to over 5 million.



[Figure 14]



Why can horse-racing fan enjoy horse racing online? It is because they have an environment where they can get the same amount of information as if they were at the racetrack, even from the comfort of their own home. The only thing they can't do is look at the horses up close, listen to their powerful footsteps, or take a deep breath and refresh yourself at the spacious racecourse.

Horse racing in Japan has long had plenty of media. Newspapers specializing in horse racing are published by many companies and are sold at various places such as train stations, bookstores, convenience stores, race tracks, and WINS. They contain detailed information necessary to consider for forecasting races, such as the horse's pedigree, stables, owners, jockeys, competition results, training times for the week, comments from stable staff, and forecasts from experts. Recently, some newspapers are sold on the Internet, and there are also forecasting sites that make full use of statistical analysis. As I have visited many horse-racing tracks overseas, I have never seen anything as detailed as Japanese newspapers.

Horse races are broadcast on normal TV channels, mainly the main races. Some local and satellite stations broadcast the races in the afternoon. In addition, there is a horse racing channel called Green Channel, which is operated by a company affiliated with

JRA. Green Channel, which uses cable and satellite broadcasting, began broadcasting in 1995. On horse race days, it broadcasts almost the same content as that broadcast at the racecourse, from the paddock to the race, for all races. On days and times when horse races are not being held, all programs are horse races related, including past races for reference, training sessions, digests of the day's races, overseas horse race broadcasts, and special features. If there are no races or horses running that you want to watch live, Green Channel and a cell phone are all you need to enjoy horse racing to your full satisfaction.

JRA VAN, which is also operated by JRA, provides race data for the past 30 years with a fee, including not only horse data, but also jockeys' performance by condition, return ratio, performance by pedigree, horse performance by track, distance, and weather, and much more. All kinds of data are available. Horse racing fans can use the data to create their own original forecasting methods. In addition to JRA VAN, there are many other sites that provide data, available to be obtained from any computer, tablet, or cell phone by horse racing fans. When making data-driven forecast, it is more convenient to stay at home rather than going to the racecourse or WINS.

As described above, the JRA has been quick to adopt Japanese technological innovations, to improve services, pursue efficient operations, enhance data provision, and create an environment that satisfies horse racing fans through the Internet and satellite broadcasting. Its advanced nature is worthy of special note. As a result, the sales of horse tickets increased, even though Covid-19 pandemic restricted the admission of horse racing fans to race tracks for a while. The success was due to the large increase in sales of horse tickets via the Internet. Internet sales were supported by the provision of plenty of data and the presence of newspapers and TV broadcasts. In addition, the integration of Japanese culture, such as video games and manga, has expanded the range of horse racing fans. In the next chapter, I will discuss these contributions to horse racing.

#### 6) Japanese cultural mix

Japan's Video Game is of global competitiveness. Nintendo and Sony's PlayStation are popular worldwide. At the ending ceremony of the Rio de Janeiro Olympics, ex-

Prime Minister Abe appeared in a Mario suit to provide entertainment for the upcoming Tokyo Olympics, and received a rousing ovation. The video game has contributed to the expansion of the field of horse racing fans. (Iwasaki, 2013)

“Derby Stallion” series, first released in 1991, enjoyed a boom in the late 1990s, with the 1997 PlayStation version selling more than 1.73 million, and a new version announced for 2020, representing strong popularity. There are more than 10 series for Video Games alone, including portable games, and even more if you include PC versions and online games. Over time, the specifications have changed, but the basic concept remains the same. In this game, the player takes on the role of a ranch owner, horse owner, and trainer at the same time, and owns mares, selects stallions, breeds and produces horses, directs their training, and runs them in races. The goal is to win all the G1 races that are set, including the big races overseas. Although the specifications vary from series to series, there is a feature that allows you to compete against other players' horses that you have bred and raised. This has caused a boom in nationwide competition for the best horses. In this game, you can learn about horse racing pedigrees, breeding, yearly horse racing programs, and basic horse racing mechanics, which contributed to the expansion of the horse racing fan base.

Next was "Winning Post". In this game, you are a ranch owner and horse owner, but when the horses you breed and train become successful, they become stallions. The stallion lineup changes year by year. Therefore, each player will see the world of horse racing with a completely different bloodline structure. The pedigrees are very detailed, and you can experience a world similar to the perspective of an owner-breeder.

In "Gallop Racer," you play as a jockey, trying to improve your riding skills and win big races, including those overseas. The game features famous horses from the past and a realistic depiction of a racetrack, which is helpful in understanding the characteristics of real horse races, such as which races are held on which type of track.

Manga, or cartoon, is also popular in Japan. Popular manga such as "Midori no Makibao," "Derby Jockey" and "Yushun no Mon" became popular in the late 1990s and early 2000s. They were serialized in magazines for younger generation. While many of them were probably minors and not allowed to buy horse tickets, many readers may have become horse racing fans after reaching age of adult.

Teru Miyamoto's "Yushun" serialized in the magazine "Shincho" from 1982 and released as a novel in 1986, won the Eiji Yoshikawa Literary Award. It was also made into a movie later. It was the story of one horse's quest to win the Derby, carrying the dream of many people. It must have moved many people to tears.

Just as "Seabiscuit" was made into a movie in the U.S., movies and novels might be popular in other countries as well. However, there is probably no other country besides Japan where video games and cartoons about horse racing are so popular among the masses. Horse racing in Japan is not an industry that is supported by a few millionaires. Many ordinary citizens are involved in horse racing as fans and sharing owners, and support the industry. This is a characteristic that might not be seen in other countries.

#### 7) The future prospects of the industry

Will Japan's horse racing industry be able to remain competitive in the future? It can be primarily depending on whether or not the Japanese economy will be able to remain internationally competitive, and the consumer will be able to earn enough disposable income. These are the keys, but they are issues of national scale and beyond the scope of this article.

Next, with the aging of society as the whole country, it is said that the average age of horse racing fans is increasing. Although JRA is implementing various initiatives for beginners in horse racing, this alone will not stop the trend of an aging customer base. As mentioned earlier, online services are well developed, and JRA has succeeded in increasing sales during the pandemic. It is possible that they have almost completed the process of allowing existing horse racing fans to fully enjoy horse racing.

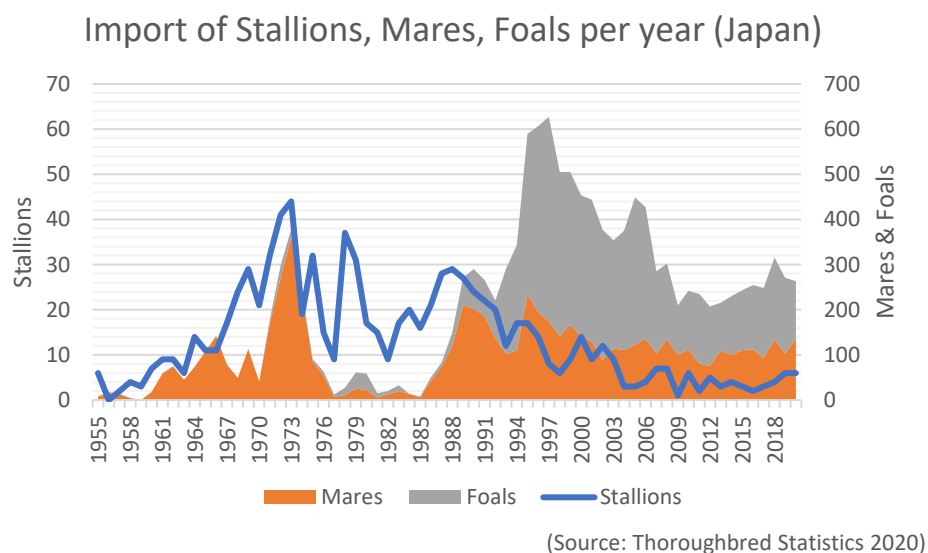
However, the availability of online services is not necessarily effective in attracting potential horse racing fans. There are many alternative entertainment services available, and competing entertainment companies are constantly refining their services.

Japan's stagnant economic growth and aging society are the challenge shared by other industries. Many companies have been pursuing to develop overseas markets to capture new demand. The automobile industry, the electronics industry, consumer goods, finance, and even the service industry have all sought to overcome these

challenges by promoting internationalization. Japan's horse racing industry is extremely closed compared to other industries, although some efforts are being made to internationalize the industry. It is an industry that is strictly regulated in many countries. While internationalization is not an easy task, it is one that needs to be tackled with more wisdom.

The Japanese horse racing industry has long been active to import horses from overseas. Figure 15 shows the number of Stallion, Mare, and Foal imported each year from 1955 to 2020. As mentioned earlier, one of the major factors that enabled Japanese racehorses to compete with the rest of the world was the importation of horses. In 1970s, 1990s and early 2000s, it was seen the importation of a large number of horses. Around the year 2000, a large number of foreign-bred horses were imported and were very successful in Japanese racing. In recent years, the number of foreign-bred horses has been decreasing, because horses produced in Japan are dominating the big races in Japan. Nevertheless, in order to avoid too much inbreeding and to introduce blood diversity, a certain number of horses are still being imported on an ongoing basis.

[Figure 15]



Up until now, horse racing in Japan has been mostly Out-In relationships with foreign countries, including the importation of excellent horses, production and racing

techniques, with the exception of overseas expeditions of Japanese horses. In the future, we should develop Out-In in a more multifaceted manner, as well as accelerate In-Out initiatives.

One such Out-In initiative was the Japan Cup, which was established in 1981. Since then, the doors have been gradually opened to foreign horses, and now all grade races are open to foreign horses, but there have been few entries. There might be a variety of reasons for this, including the complexity of quarantine and the fact that Japanese horses are too strong in the racetrack in Japan.

As for jockeys, there have been many opportunities for foreign jockeys to ride in Japan due to short-term licenses for foreign jockeys. In 2015, regulations were more relaxed to allow foreign jockeys to obtain full-time Japanese licenses. This allowed top jockeys such as Christophe Lemaire and Mirco Demuro, who had been well recognized around the world, to ride constantly in Japan, but no one has followed since then.

As for producers, there are some foreign-owned farms, such as Paca Paca Farm, established in 2001, and Darley Japan, established in 2004, which is practically owned by His Highness Sheikh Mohammed of the UAE, but most of them are run by Japanese. The trainers and stable staff are dominated by Japanese.

With regards to In-Out, first of all, horse tickets are only sold domestically. For major overseas races in which Japanese horses are scheduled to run, JRA began selling tickets starting with the Prix de l'Arc de Triomphe in 2016. But it is still Out-In. It may not be easy, as each country has its own regulations, but there may be a way to make it possible for organizers in each country to sell tickets in a mutually beneficial way.

There have been cases in the past where jockeys and stable officials have trained overseas, but it has not made an apparent trend. In the past, most of them went to developed countries to learn and then returned to Japan. There could be an opportunity to go somewhere in developing countries going forward, to explore the new markets.

In recent years, there has been an increase in the number of horses being exported, albeit in small numbers. Recently, there have been opportunities for horses descended from Japanese stallions and mares to compete in major races overseas, demonstrating

the presence of Japanese horse racing. However, if we look at horse racing overseas, we can see that horses are widely traded across continents. In terms of horse quality alone, Japan is considered to be one of the best in the world, so there is demand for horses in both developed and developing countries. In order to survive as an industry, to maintain the diversity of blood, and to expand the competitiveness of racehorses, further international trade will be necessary.

Another way to do this might be to export various aspects of horse racing know-how. There could be a way to export a series of industrial processes, such as ranch management, training facilities, and racing, to other countries, whether through direct investment or licensing. In other industries, this is what the company managements do on a daily basis.

With the collective wisdom of the people involved in horse racing, it appears that the Japan is finally catching up with advanced countries, but it may continue to be challenges. As other Japanese industries have done, it is time for the Japanese horse racing industry to further promote internationalization.

In writing this paper, I have not come across enough literature that analyzes horse racing as an industry. I would be pleased if this paper could help the internationalization of horse racing industry in Japan.

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## VITA

**NAME** KATSUYA IMANISHI

**DATE OF BIRTH** 7 Sep 1976

**PLACE OF BIRTH** Kyoto

**INSTITUTIONS** MABE 2020

**ATTENDED**

**HOME ADDRESS** 25 Bangkok Insurance Building 15-17 floor,  
Sathorn Road, Sathorn, Bangkok 10120

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จุฬาลงกรณ์มหาวิทยาลัย  
CHULALONGKORN UNIVERSITY