

**An analysis of the diversification
strategies of railway companies In Japan**

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AN ANALYSIS OF THE DIVERSIFICATION STRATEGIES OF RAILWAY COMPANIES IN JAPAN¹

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ABSTRACT

In this paper, the diversification strategies of railway companies in Japan are analyzed by the method of Rumelt (1974). After reviewing previous studies and considering the application of our study, the analysis is conducted. A comparison of the results among companies reveals there is a striking difference between Japan Railways group (JR group) and private railway companies. JR group is diversifying its business, but it appears that the area they specialize in is railway business (main), or at least business with a strong connection with railways. Based on the data, an interregional comparison is conducted and the modal share and population are projected. From this comparison, it is found that the diversification strategy of each company is affected by the environment of each area in which the companies are located. The relationship between profitability and diversification is also considered, but it does not support the findings by Rumelt (1974) and other previous studies.

Keywords: diversification, railway company, Rumelt model

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1. INTRODUCTION

The purpose of this paper is to analyze the diversification strategies of railway companies in Japan and consider the implications for their businesses, especially for the Japan Railways group (JR group). It has been 20 years since the National Railway in Japan was privatized to form JR group, which was divided into six passenger railway companies (Hokkaidō, East, Central, West, Shikoku, and Kyūshū) and one freight company. After privatization, each JR entity was required to achieve profits for their management, especially JR East, Central, and West. One of the means of making profit was by diversifying their business into, for example, real estate, hotel, travel and retail businesses. For example, JR East has developed a shopping area, “e cute”, in some terminal stations. This is not original to JR. Japanese private railway companies have diversified their business since they were established almost 90 years ago. This is one of the reasons why Japanese private railway companies are able to manage railway businesses without subsidies. From an academic perspective, this can be understood as the “internalization of externalities”. If a railway company carries out railway business and urban development simultaneously, the deficits from railway operations under marginal pricing can be covered by revenues from land. This is the so-called “developer theorem”.

Some studies have analyzed the diversification strategy of Japanese private railway companies using the model suggested by Rumelt (1974) (Yoshida (1986), Shoji and Killeen (1998) etc). Rumelt (1974) and some related studies showed that firms that diversify into fields relating to their main business tend to be more profitable than firms that expand into unrelated activities. Shoji and Killeen (1998) considered the relation between profitability and the level of diversification of Japanese private railway companies and showed the same results as above. Shoji (2000) developed the paradigm model of the diversification strategy of Japanese private railway companies. Although JR has also diversified its business, to date there are no studies analyzing this diversification. It seems useful to analyze the JR strategy, and provide some implications.

This paper consists of the following. In Section 2, we summarize the diversification of Japanese private railways historically and examine previous studies. In Section 3, we review Rumelt (1974) and the related studies (Yoshida (1986), Shoji and Killeen (1998) etc) and consider their application to our study. In Section 4, we conduct an analysis of our study and show the results. We also consider the diversification strategy of Japanese railway companies based on the results. Our contribution and implications for future research will be considered in the conclusion.

2. DIVERSIFICATION OF THE JAPANESE RAILWAY COMPANIES³

The history of railways in Japan started in 1872 when Japan's first railway opened between Shimbashi in Tokyo and Yokohama. The Meiji government placed great importance on the policy of building a railway network throughout Japan. However, while the government had such a policy, its budget was insufficient to achieve it at that time. For this reason, the Meiji government permitted private railways to build intercity lines. Until 1905, almost 70% of the total route length was owned by private railways. The Railway Nationalization Law went into effect in 1906 and intercity lines owned by the private companies were nationalized. From that time, the operating area of private companies was limited to local (inner-city) areas where they did not compete with government lines. The railway service in these inner-city areas was underperforming owing to the small population, yet the government required the private companies to operate without subsidies. In such an environment, the private companies had an incentive to generate ridership through diversification.

Minoo-Arima railway was a pioneer in terms of introducing a diversification strategy to railways. They built the railway between Umeda (Osaka) and Takarazuka, and developed a residential town around this line simultaneously. The deficits from the railway operations could be covered by revenues from the residential town. This is the so-called “developer theorem” in practice. Arima-minoo also opened a department store at Umeda terminal station, and an amusement park was developed near Takarazuka, which is the other terminal station. The aim of these strategies was to boost ridership of their railway, because people living in the residential town would become regular railway passengers.

This strategy was considered and conducted by Ichizo Kobayashi, who was the founder of Minoo-Arima railway company. Almost all the private railway companies introduced this strategy, regardless of the size of the company. Thus, the diversification strategy has become established as a way for private railway companies to operate railways. In general, bus, taxi, real estate, hotel, leisure, and retail businesses are typical diversification businesses for the private railways. JR also placed importance on diversification. In fact, all JR group started to diversify their business after the privatization in 1987.

Shoji (2001b) suggested that diversification has the seven following advantages.⁴

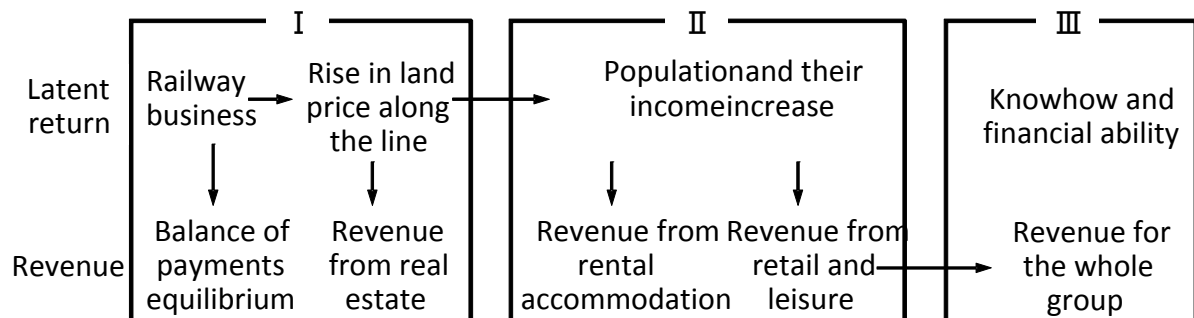
- 1) Rail ridership increases as passengers are attracted to other in-house or group businesses.
- 2) Short- and long-term changes in ridership contribute to leveling off passenger volumes between peak and off-peak periods (and directions).
- 3) Group companies can utilize the rail passenger base.

³ Chujo (1989), Narita (1989), Mizutani (1994), Saito (1993), Shoji (2001a) and Yamauchi (1989) were reviewed for this section.

⁴ Shoji (2001b) p.16.

- 4) Internalization of externalities is brought about by the creation of rail infrastructure leading to profitability, which makes it easier for the company (and group companies) to improve services.
- 5) The company can more easily develop a market-oriented outlook based on experience from operating in the nonrail deregulated business environment.
- 6) Railway operation costs are reduced by sharing the operating costs of group members between rail and diversified divisions.
- 7) Group managerial resources are used effectively, reducing operating costs.

In addition, Shoji (2001a) provided a model of the diversification process of private railways based on regional development (Figure 1).



Source: Shoji (2001a) p.181 Figure 5-2 (in Japanese)

Figure 1 – The diversification process model of private railways

Shoji (2001a) explained each stage of this model as follows.⁵

In the first stage, the company mainly operates railway and real estate businesses. At the time of building the railway, the company buys land for both the railway and a residential town, and conducts activities to increase railway capacity through the development of the residential town. As a result, the land price rises because of the increasing convenience of the railway and residential town. Revenue from the sale of real estate also increases. It can be said that the railway company directly internalized the benefit generated by the development of the railway and residential town.

As a result of the activities of the first stage, the population in the residential town and the company's income increases in the second stage. The company starts to build residential amenities (department stores, supermarkets, leisure facilities and so on) to make the railway and the town more attractive.

By the third stage, managerial resources, know-how, and financial ability have accumulated. The company diversifies further into related or unrelated business.

⁵ Shoji (2001a) pp.181–183.

Shoji (2001a) noted that almost private railway companies have diversified their business broadly from their commencement, rather than in their mature phase.

3. THE RUMELT MODEL AND APPLICATION TO OUR STUDY

Rumelt (1974) developed a model to analyze the diversification category of 500 companies in the USA. This model has been applied to many studies (Montgomery (1982), Rumelt (1982), Bettis (1981), Geringer et. al (1989), Kranenburrig et. al (2004) etc). In Japan, Yoshihara et al. (1981) applied the Rumelt model to their study, which surveyed companies in Japan. Yoshida (1986) applied this model to analyze transportation industry. Shoji and Killeen (1998) and Shoji (2001a) used the Rumelt model to analyze the diversification of Japanese private railway companies. Here, we review these studies and consider their application to our study.

3.1 Rumelt model

Diversification categories

Table 1 shows the categories of diversification strategies suggested by Rumelt (1974) and Yoshida (1986). “SR” denotes the specialization ratio, which is defined as the proportion of a firm’s revenues that can be attributed to its largest single business in a given year. “VR” is the vertical ratio, which is defined as the proportion of a firm’s revenues that arise from all by-products, intermediate products and end products of a vertically integrated sequence of processing activities. “RR” is the related ratio, which is defined as the proportion of a firm’s revenues that can be attributed to its largest group of related business.

Table 1 – Diversification categories

Rumelt (1974)		Yoshida (1986)	
Category	Percent of total revenues	Category	Percent of total revenues
1 Single business (S)	$SR \geq 0.95$	1 Single business (S)	$SR \geq 0.90$
2 Vertical business (V)	$SR < 0.95$ and $VR \geq 0.7$	2 Vertical business (V)	$VR > RR \geq 0.70$
3 Dominant-constrained (DC)	$0.7 \leq SR < 0.95$, $VR < 0.7$	3 Dominant business (D)	$SR \geq 0.70$
4 Dominant-linked (DL)	$0.7 \leq SR < 0.95$, $VR < 0.7$		
5 Related-constrained (RC)	$SR < 0.7$, $VR < 0.7$, $RR \geq 0.7$	4 Related business (R)	$RR \geq 0.70$
6 Related-linked (RL)	$SR < 0.7$, $VR < 0.7$, $RR \geq 0.7$		
7 Unrelated business (U)	$SR < 0.7$, $VR < 0.7$, $RR < 0.7$	5 Unrelated business (U)	Others

Rumelt (1974) defined seven categories of diversification strategy, as follows.⁶

1) Single business (S): firms that are basically committed to a single business. These companies are those with an SR of 0.95 or more.

2) Vertical business (V): based on the proportion of a firm's revenues that arise from all by-products, intermediate products, and end products of a vertically integrated sequence of processing activities. These companies have a VR greater than or equal to 0.7.

3) Dominant business (D): firms that have diversified to some extent but still obtain the preponderance of their revenues from a single business. These companies have an SR greater than or equal to 0.7, but less than 0.95.

3-1) Dominant-constrained (DC): firms that have diversified by building on some particular strengths, skills, or resources associated with the original dominant activity. The majority of the diversified activities are all related to one another and to the dominant business.

3-2) Dominant-linked (DL): firms that have diversified by building on several different strengths or resources, or have built on new strengths,

⁶ Rumelt (1974) pp.29–32, 35.

skills or resources as they are acquired. The majority of the diversified activities are not directly related to the dominant business but each activity is somehow related to some other activity of these firms.

4) Related business (R): firms that are diversified, having SRs of less than 0.7, and in which diversification has been primarily accomplished by relating new activities to old, so that the RR is 0.7 or more.

4-1) Related-constrained (RC): firms that have diversified by relating new business to a specific central skill or resource and in which, therefore, each business activity is related to almost all of the other business activities.

4-2) Related-linked (RL): firms that have diversified by relating new business to some strength or skill already possessed, but not always the same strength or skill. By diversifying in several directions and exploiting new skills as they are acquired, such firms have become active in widely disparate businesses.

5) Unrelated business (U): firms that have diversified chiefly without regard to relationships between new businesses and current activities. Such firms are defined by a related ratio of less than 0.7.

Rumelt (1974) defined the dividing line between the dominant, and the related and unrelated groups based on empirical evidence. For example, he derived the distributions of SRs for 1949, 1959, and 1969, which were obtained from the sample used in Rumelt (1974), and he also defined the 0.7 line of demarcation. In regard to this empirical evidence, because data were unavailable for certain points, and because the SRs for many diversified firms were difficult to identify, Rumelt (1974) mentioned that these distributions must be considered suggestive rather than definitive.

Yoshida (1986) applied the Rumelt model to analyze the transportation industry. He modified the seven diversification categories into five categories with new criteria as shown in Table 1. Shoji and Killeen (1998) and Shoji (2001a) also followed Yoshida (1986).

Discrete business

The business unit should be defined in the Rumelt model. In the case of Yoshida (1986), "railway" was taken as the largest single business (main business), and vertical business is "bus and taxi," related business is "real estate", and unrelated is "others". Shoji and Killeen (1998) and Shoji (2001a) used definitions almost identical to Yoshida.

Although these studies defined "bus and taxi" as a vertical business, it seem to be better to define it as a related business. In addition, vertical relation of railway is more precisely defined as a management resource of a railway service, such as a station or cars, used for other areas of business. Hori (2003) commented that the specific related assets of a railway,

defined as railway tracks, satisfy the so called vertical relationship because public utility businesses provide their service using infrastructure and operation system. According to Hori (2003), railway tracks, assets, and technology can be interpreted as the vertical business of a railway company.

Diversification index

The diversification index (DI) measures quantitatively the extent to which a firm is diversified. Because the Rumelt (1974) model just categorizes the diversification strategy, it does not reflect this quantitative dimension. For this reason, almost all the earlier studies also used the DI. The DI is derived from the following formula.

$$DI = \left(1 - \sqrt{\sum_{i=1}^n p_i^2} \right) \times 100.$$

3.2 Application to our study

Here, we consider the application to our study of the previous studies, based on the above survey. First, the diversification category of Yoshida (1986) is employed. Discrete business is defined as the following: “railway” is taken to be the largest single business, related is “real estate” and unrelated is “other” business. Segments data from financial statements are used to define each discrete business. As mentioned above, the vertical business of the railway is interpreted as railway track, assets, and technology. However, the data used in this study include such businesses in the railway division. Because of this, the category of vertical business is excluded from this study.

The dividing line between the dominant and the related and unrelated groups is derived from the distribution based on Rumelt (1974). Figure 2 shows the distribution of the SRs of the 16 railway companies that will be analyzed in this study. The horizontal axis shows the SR and vertical axis indicates the number of companies. From Figure 2, the dividing line between the dominant and the related and unrelated groups occurs at an SR of around 0.6. In this study, the dividing line is defined as in Table 2. Figure 3 is the flowchart that reflects Table 2.

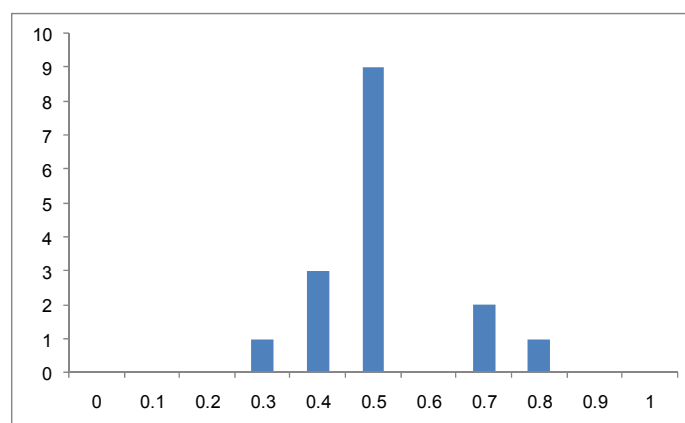


Figure 2 – The distribution of SRs (16 companies)

Table 2 – Diversification categories and dividing line in this study

	Category	Dividing line
1	Single business (S)	SR:0.70
2	Dominant business (D)	SR:0.60
3	Related business (R)	RR:0.50
4	Unrelated business (U)	Other

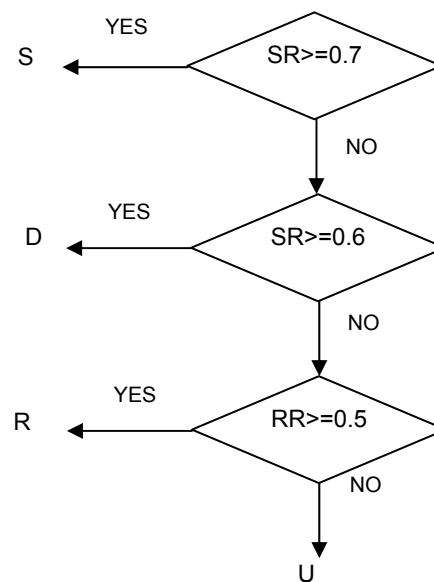


Figure 3 – The flowchart in this analysis

4. ANALYSIS OF THE DIVERSIFICATION OF RAILWAY COMPANIES

Shoji and Killeen (1998) and Shoji (2001a) analyzed the diversification of private railway companies in the Kansai area of Japan, based on Yoshida (1986). They found that each company remained stable in terms of related business (R) since 1975, a period of almost 20 years. Moreover, they revealed the fact that the overall operating profitability tends to increase according to the extent of diversification. The most profitable category is “R”, whereas profitability decreases in “U”.

Following the previous studies, the diversification strategy of railway companies will be analyzed in this section. The results of this analysis will be used to make interfirm and

interregional comparisons. We also identify the relationship between the overall operating profitability and the diversification strategy.

4.1 Railway companies for analysis

Railway companies and the data

As shown in Table 3, 16 railway companies are employed for the analysis. The details of the available data are also shown in this table.

Table 3 – Railway companies and available data

	Operating area	Name of railway company	Name in this paper	Available data (fiscal year)
1	Tohoku and Kanto	East Japan Railway Company	JR East	1996 – 2008
2	Tokai	Central Japan Railway Company	JR Central	1996 – 2008
3	Kansai	West Japan Railway Company	JR West	1997 – 2008
4		Tobu Railway Co.,Ltd.	Tobu	2004 – 2008
5		Seibu Railway Co.,Ltd.	Seibu	2000 – 2008
6		Keisei Electric Railway Co.,Ltd.	Keisei	2004 – 2008
7		Keio Corporation	Keio	1999 – 2008
8	Kanto	Odakyu Electric Railway Co., Ltd.	Odakyu	2004 – 2008
9		Tokyu Corporation	Tokyu	2003 – 2008
10		Keihin Electric Express Railway Co., Ltd	Keikyu	2000 – 2008
11		Sagami Railway Co., Ltd	Sotestu	2000 – 2008
12	Tokai	Nagoya Railroad Co.,Ltd.	Meitetsu	1999 – 2008
13		Kintetsu Corporation	Kintetsu	2002 – 2008
14		Nankai Electric Railway Co.,Ltd.	Nankai	2001 – 2008
15	Kansai	Keihan Electric Railway Co.,Ltd	Keihan	2000 – 2008
16		Hankyu Hanshin Holdings, Inc.	Hankyu and Hanshin	2001 – 2008

JR refers to JR East, Central, and West. Although there are six JR passenger railway companies, only three companies had data available for analysis.

There are 13 private railway companies, all the major classes of which operate in three major metropolitan areas in Japan (Tokyo, Nagoya, and Kansai). Hankyu and Hanshin identify one company. Although there are 16 major classes of private railway companies, two of these companies are excluded in this analysis for the following reason. One is Tokyo Metro Co., Ltd which operates in the Tokyo urban area. Because this company was privatized only in 2004, there is insufficient data available for our analysis. The second exclusion is Nishi Nihon Railway Company, which mainly operates in Fukuoka city. The largest business of this company has been the bus business.

Discrete business in this analysis

As mentioned above, data on segments from financial statements are used to define each discrete business in this analysis. Although the definition of firms by segments is not common, it is difficult to obtain detailed business data (sales and so on) in one segment so therefore we do not convert the original segment data. Segments data are generally classified into “main” (the largest business), “related”, and “unrelated”, as shown in Table 4.

Table 4 – Discrete business

Discrete business	Main	Related	Unrelated
Segment in financial statement	Railway	Retail, real estate, hotel, leisure, and so on	Other

4.2 Analysis and result

Table 5 shows the results of this analysis. In this table, “category” refers to the diversification category, while “S” denotes single business, “R” related business, “U” unrelated business, and “DI” refers to the diversification index. “Profitability” refers to overall operating profitability, which is operating revenue divided by operating costs.

The results of this analysis are used to make two comparisons: a comparison among the 16 railway companies and an interregional comparison. In addition, the relationship between the overall operating profitability and the diversification strategy is considered.

Table 5 – Results of the analysis

Year	JR East			JR Central			JR West			Tobu			Seibu			Keisei			Keio			Odakyu		
	C	DI	P	C	DI	P	C	DI	P	C	DI	P	C	DI	P	C	DI	P	C	DI	P	C	DI	P
1996	S	23.9	119	S	10.7	143																		
1997	S	23.7	119	S	10.7	141	S	22.9	111															
1998	S	23.8	117	S	10.7	138	S	23.7	111															
1999	S	24.1	116	S	11.5	136	S	23.7	110										R	27.7	106			
2000	S	24.7	116	S	16.7	134	S	24.7	110				D	28.4	106				R	27.7	108			
2001	S	25.2	115	S	16.5	137	S	24.7	111				U	29.2	105				R	27.7	109			
2002	S	26.6	114	S	18.5	133	S	25.3	112				U	29.2	106				R	27.7	109			
2003	S	26.4	115	S	17.5	133	D	28.0	112	R	31.9	107	U	29.2	106				R	27.7	109			
2004	S	25.5	116	S	17.5	133	D	28.0	112	R	31.6	108	U	29.2	106	U	33.1	111	R	27.7	109	R	36.9	109
2005	S	26.2	116	S	17.5	138	D	28.9	112	R	31.6	108	U	29.4	108	U	33.8	112	R	27.7	110	R	37.8	106
2006	S	26.1	118	S	18.3	137	D	28.9	112	R	33.1	108	R	35.6	106	U	34.0	111	R	28.2	111	R	37.8	108
2007	D	27.0	119	S	18.5	139	D	28.6	112	R	31.9	106	R	36.0	106	U	34.4	111	R	28.2	111	R	38.2	108
2008	D	26.6	120	S	20.3	132	D	28.5	111	R	31.9	107	R	35.6	104	U	33.8	111	R	29.1	109	R	34.9	106

Year	Tokyu			Keio			Sotetsu			Meitetsu			Kintetsu			Nankai			Keihan			Hankyu and Hanshin		
	C	DI	P	C	DI	P	C	DI	P	C	DI	P	C	DI	P	C	DI	P	C	DI	P	C	DI	P
1996																								
1997																								
1998																								
1999										R	32.9	103												
2000				R	31.4	108	R	16.4	98	R	33.6	103							R	33.1	106			
2001				R	32.9	110	R	27.0	100	R	33.0	103				U	39.2	109	R	31.5	105	U	37.5	111
2002				R	32.5	110	R	28.3	108	R	33.0	104	R	28.6	103	U	41.5	112	R	31.5	108	R	32.1	110
2003	R	34.8	105	R	33.2	110	R	23.7	107	R	33.8	105	R	28.6	104	U	41.1	110	R	31.1	107	R	29.2	111
2004	R	28.0	108	R	33.7	111	R	18.6	108	U	35.0	105	R	27.1	106	U	39.9	112	R	30.8	108	R	30.0	111
2005	R	21.2	107	R	32.4	112	R	17.7	108	U	33.2	106	R	22.5	108	U	40.1	114	R	30.3	108	R	29.6	114
2006	R	22.1	106	R	33.4	112	R	19.5	108	U	33.2	105	R	22.8	108	U	40.4	116	R	27.5	109	R	31.1	116
2007	R	22.9	107	R	32.5	112	R	18.5	108	U	33.3	105	R	22.2	107	U	38.0	118	R	27.0	107	R	32.1	113
2008	R	23.0	105	R	33.8	110	R	16.5	106	U	33.8	104	R	21.8	105	U	38.6	112	R	28.8	106	R	34.2	114

Note: "C" denotes the diversification category; "DI" denotes the diversification index; and "P" denotes profitability, which is operating revenue divided by operating costs.

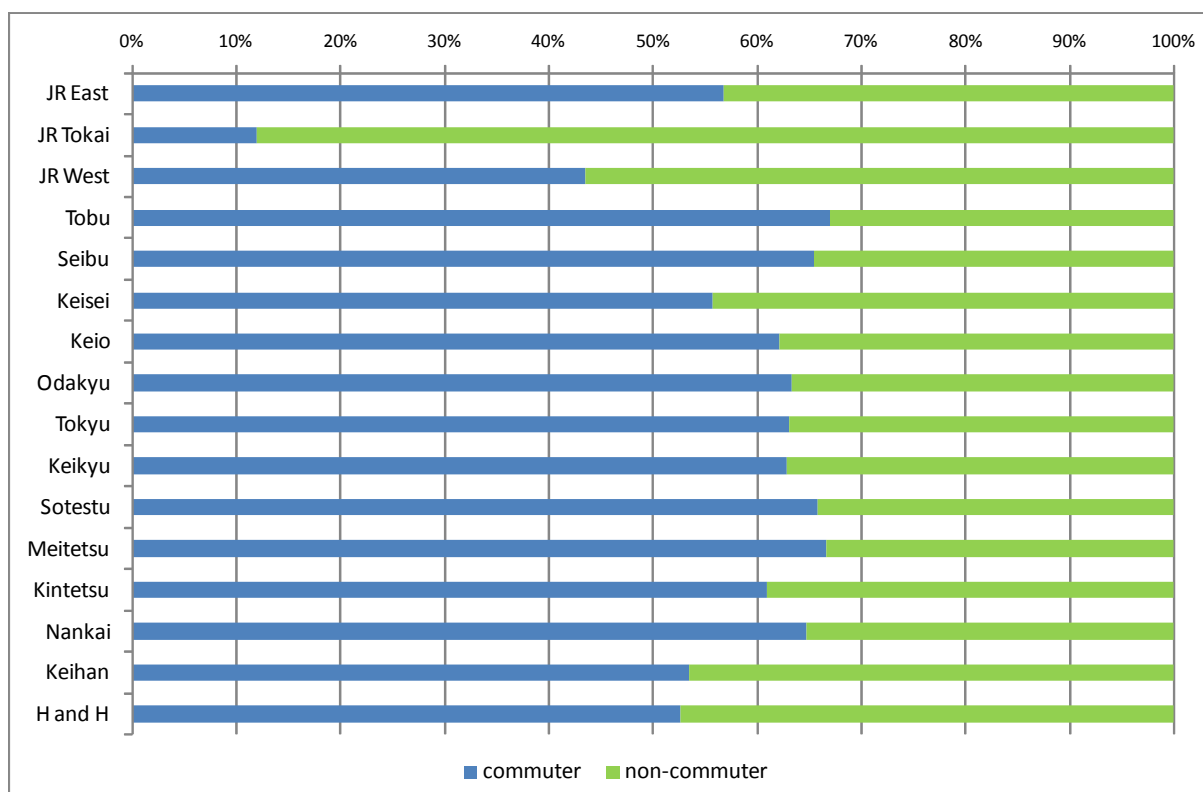
Comparison among railway companies

First, Table 5 shows a striking difference between JR group and private companies. The diversification strategy of each of the JR companies is categorized as either “S” or “D”. This means that JR companies are diversifying their businesses, but the area into which they have specialized appears to be railway business (main), or at least an area with a strong connection with railway business. As shown in Table 6, the operating area of the JR group is relatively larger than that of the private companies. The lines owned by JR group are almost all of the trunk lines, that is, the intercity lines, and JR group also own and operate Shinkansen. The lines owned by the privates are mainly intraregional lines. From this, it can be considered that there are differences in the diversification strategies of JR group and private companies. In other words, it can be considered that the railway companies that own trunk lines have extended their business in areas with strong connections with the railway.

Table 6 – Output of each company

	Operating area	Name in this paper	Operating distance (km)	Passengers (1,000/km)	Average trip length (km)
1	Tohoku and Kanto	JR East	7,526.8	130,558,147	21.2
2	Tokai	JR Central	1,970.8	55,811,481	105.7
3	Kansai	JR West	5,024.0	54,585,030	30.0
4	Kanto	Tobu	463.3	12,771,152	14.6
5		Seibu	176.6	8,827,399	14.2
6		Keisei	102.4	3,603,257	14.1
7		Keio	84.7	7,504,493	11.9
8		Odakyu	120.5	10,143,147	9.6
9		Tokyu	100.1	11,145,563	15.6
10		Keikyu	87.0	6,344,554	14.4
11		Sotestu	35.9	2,656,078	11.5
12	Tokai	Meitetsu	445.4	6,511,504	18.9
13		Kintetsu	508.2	11,738,611	19.4
14		Nankai	154.8	3,826,832	16.4
15	Kansai	Keihan	88.1	4,116,810	14.2
16		Hankyu and Hanshin	191.6	10,420,811	11.9

Next, in 2008, JR Central is categorized as “S” and has a DI of 20, which is different from JR East and JR West. As shown in Figure 4, a feature of JR Central is that the number of noncommuting passengers is larger than that of commuting passengers, commuters being passengers who travel to work and school. One of the reasons is that JR Central own Centraldo Shinkansen and the number of passengers on this line is larger than the passengers of commuter lines. This is supported by the figures on average travel kilometers per passenger in Table 6. The average trip length of the companies is longest for JR Central, and it appears that almost all passengers travelled by Shinkansen. From the above, it can be considered that JR Central places a relatively high priority on boosting the capacity of Shinkansen, as reflected in the result for JR Central in this analysis.



Note: "H and H" means "Hankyu and Hanshin"

Source: Ministry of Land, Infrastructure, Transport and Tourism (2009) Annual Rail Statistics (Tetsudo Tokei Nenpo)

Figure 4 – The ratio of commuting and noncommuting passengers (2007)

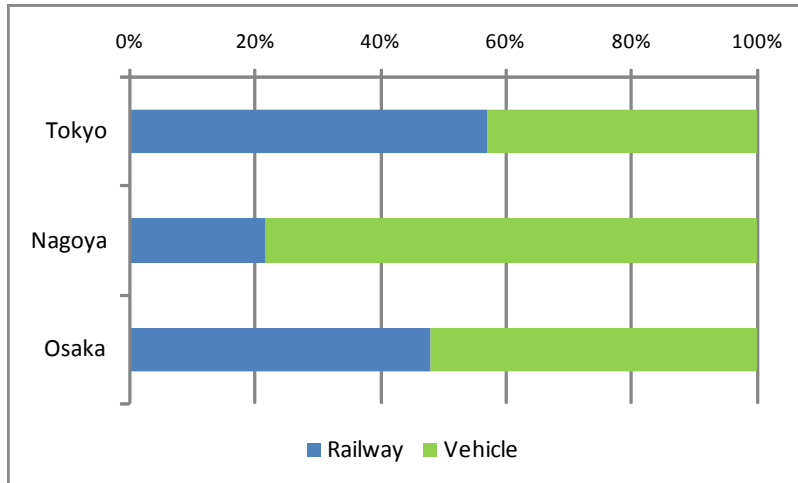
The DI of each JR has increased yearly, although for private companies, DIs are almost all stable over time. JR group developed their business diversification as soon as they were privatized. However, private companies seemed to have conducted reviews that reduced diversification activities.

The results show the companies that have the same level of DIs but in different categories. For example, Sotetsu has the smallest DI among the private companies, with a level that is almost the same as that of JR Central. However, the category of Sotetsu is "R". Sotetsu has extended diversification to a limited degree only. The reason for this is that its operating kilometers are smaller than those of other companies, making it difficult to diversify based on railway.

Keisei and Nankai companies are a similar scale in terms of operating kilometers and passenger kilometers. Their diversification strategies are categorized as "U" and their DIs are the same level. The condition of both operating areas is suburban rather than urban. As these two companies have a great deal in common, their diversification strategies are similar to each other.

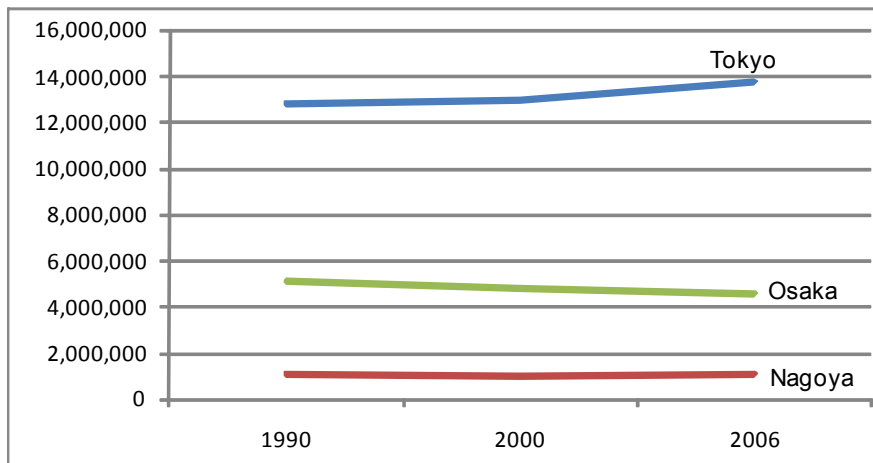
Interregional comparison

For consideration here, each company is divided into the following three metropolitan regions based on their operating area: Tokyo metropolitan area (Tokyo), Nagoya area (Nagoya), and Osaka area (Osaka). Tokyo includes Tokyo, Kanagawa, Saitama, and Chiba. Nagoya includes Aichi, Mie, and Shiga. Osaka includes Osaka, Kyoto, Hyogo, and Nara. In addition, for comparison, four figures are provided.



Source: Institution for Transport Policy Studies, Annual Urban Transport (Toshi Kotsu Nenpo)

Figure 5 – The modal share of metropolitan areas



Note: the unit of the vertical axis is 1,000 passengers

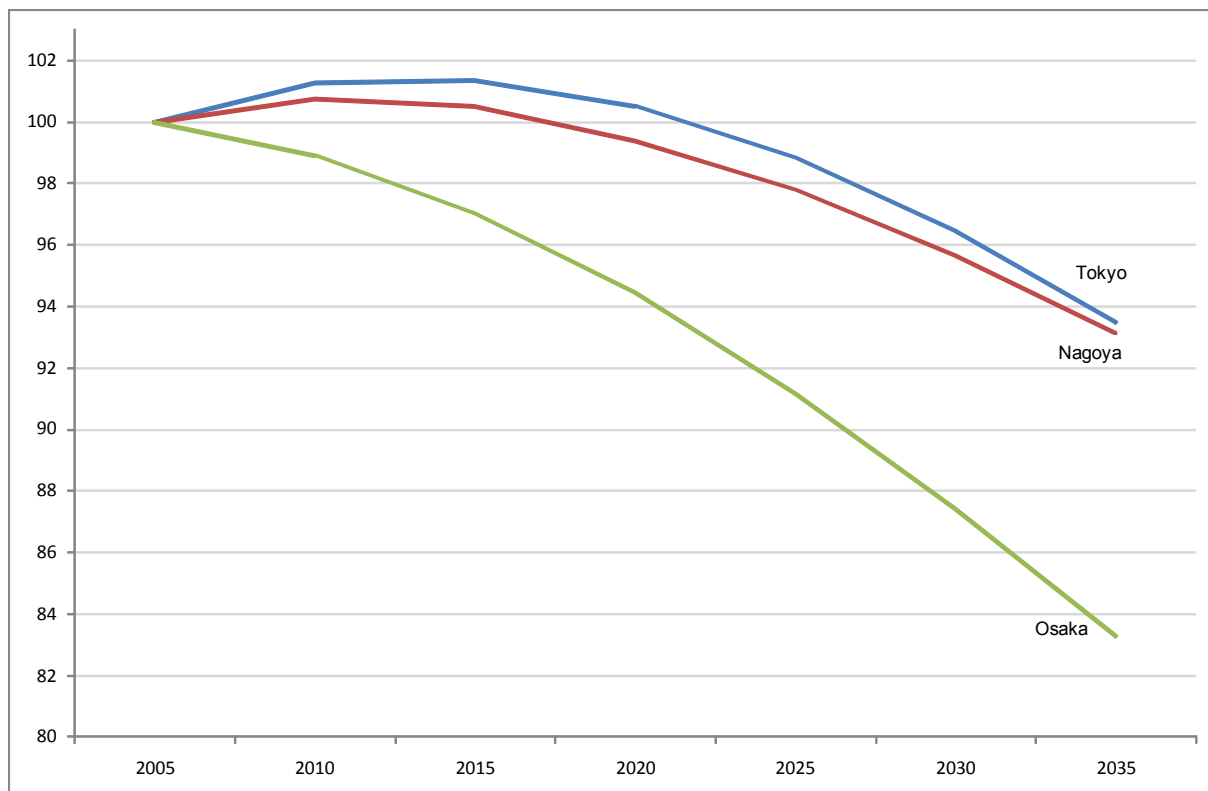
Source: Institution for Transport Policy Studies, Annual Urban Transport (Toshi Kotsu Nenpo)

Figure 6 – Passenger trends in metropolitan areas

From Figure 5, it can be seen that the modal share in Nagoya is different from that of Tokyo and Osaka in that the share of vehicles is larger than the share of rail. JR Central and Meitetsu have their operating area in Nagoya. JR Central’s diversification is categorized “S” and their DI is around 20. As mentioned above, JR Central may not have an incentive to diversify to an “R” or “U” strategy because of the stable gains from Shinkansen. In contrast,

Meitetsu has its operating area mainly in Nagoya, in an area that is narrower than JR Central. The rail business of Meitetsu is facing severe competition from vehicles. Under these circumstances, Meitetsu have an incentive to diversify their business broadly. Since 2004, the category of Meitetsu has changed “U” from “R”, reflecting the fact that Meitetsu now gains revenue from rail and diversified business. In fact, as shown in Table 5, Meitetsu has kept its profitability constant.

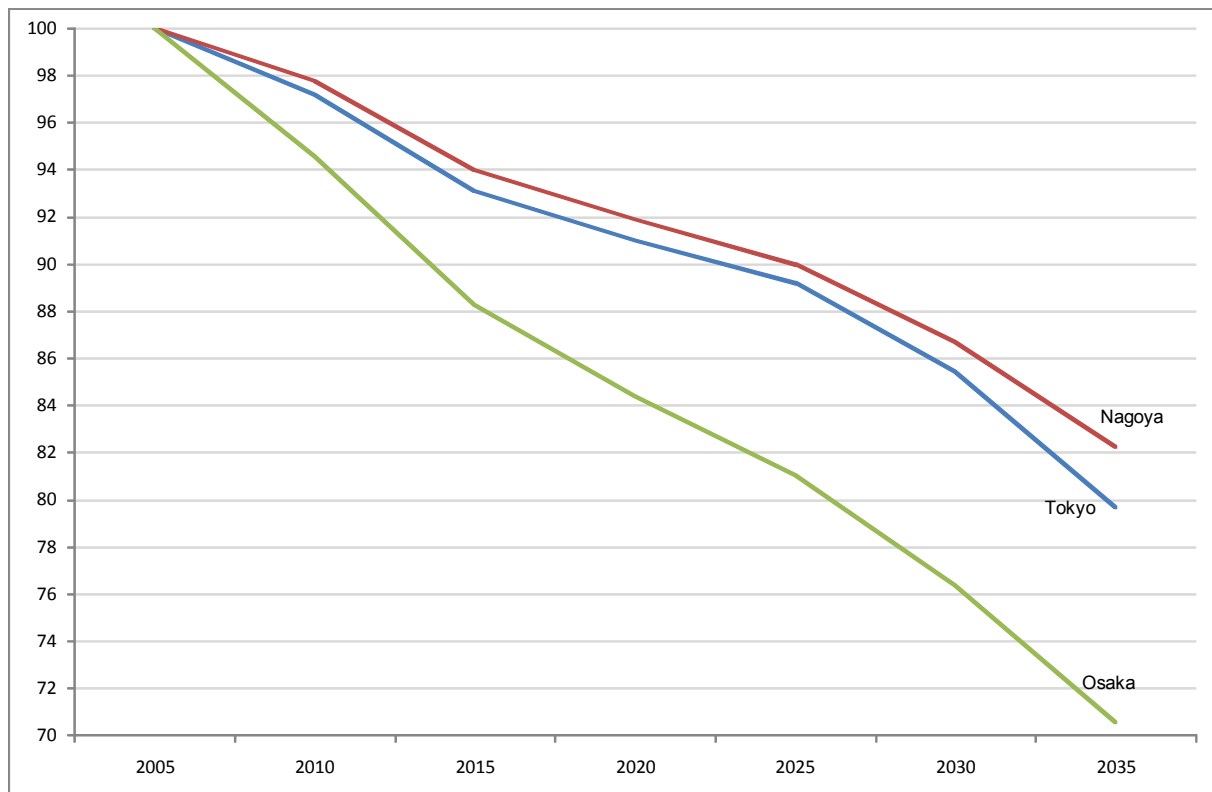
Next, we compare each category for Tokyo and Osaka. In Tokyo, almost all of the private companies are categorized as “R”, except Keisei, which is categorized as “U”. Osaka shows similar patterns. From this, we conclude that these two areas had the same trend of diversification of the private companies. The diversification category of JR West has changed “D” from “S” from 2003 and its DI is the highest among the JR group. It is found that JR West has diversified early on. In this regard, Figure 7 and Figure 8 show that total and household population is projected to decrease considerably in Osaka. As a result, it is expected that railway companies operating in Osaka will diversify their business to boost revenue. As a result of these strategies, the category of diversification might change in the future.



Note: 2005=100

Source: National Institute of Population and Social Security Research

Figure 7 – Population projections by prefecture



Note: 2005=100

Source: National Institute of Population and Social Security Research

Figure 8 – Household population projections by prefecture

The relationship between profitability and diversification strategy

Here, we consider that the relationship between profitability and diversification. As mentioned above, Rumelt (1974) and some related studies showed that firms that diversify into fields relating to their main business tend to be more profitable than firms that expand into unrelated activities. Shoji and Killeen (1998), and Shoji (2001a) considered the relation between profitability and the level of diversification of Japanese private railway companies and showed that the overall operating profitability tends to increase according to the extent of diversification, with the most profitable category being “R”, while profitability decreases in “U”. This result supports Rumelt (1974).

According to Shoji (2001a), railway companies in this analysis are divided into three groups based on their category, with “S” excluded. Table 7 shows the average DI and profitability of each category in 2008. The number of companies is shown under each category and underlined numbers indicate JR.

Table 7 does not support the findings by Rumelt (1974), Shoji and Killeen (1998), and Shoji (2001a). The highest profitability is in “D” and the profitability of “R” is the lowest. Both of the companies listed under “D” are JR group. Even if JR companies listed as “D” are excluded, the profitability of “U” is higher than that of “R”. A possible reason is that the diversification business of private companies has entered a mature phase and companies are seeking for

other revenue from unrelated business. To verify this theory, interviews with railway companies are required and this is one of our future assignments.

Table 7 – Average DI and profitability of each category in 2008

Category	DI	Profitability	The number of companies		
			Tokyo	Nagoya	Osaka
D	27.6	116	1		1
R	29.0	107	7		3
U	35.4	109	1	1	1

5. CONCLUSION

In this paper, we analyzed the diversification strategies of railway companies in Japan and consider the implications for their businesses. First, we summarized the diversification of Japanese private railways both historically and based on their current status. In addition, the diversification strategies of Japanese railway companies are considered based on the general theorem in management.

Next, we reviewed Rumelt (1974) and the related studies (Yoshida (1986), Shoji and Killeen (1998) and others) and considered their application to our study. Two original points of our study are as follows. First, although “bus and taxi” was divided into the vertical business category in previous studies, this paper interprets vertical business as railway track, assets, and technology, while “bus and taxi” is interpreted as a related business in this paper. Second, the dividing line between the dominant, and the related and unrelated groups was derived from the distribution of 16 companies based on Rumelt (1974). This was an attempt to reflect the current status of the railway industry, although the method should be further developed.

Based on these considerations, we conducted an analysis and provided the results. The results of this analysis enabled us to make interfirm and interregional comparisons. In addition, we identified the relationship between the overall operating profitability and the diversification strategy of companies. Based on a comparison among companies, there is a striking difference between JR group and private companies. JR group are diversifying their business, but the area they are specialized into is railway business (main), or is at least strongly connected with railway business. We provided an explanation in that the operating area of JR group is relatively large compared to that of the private companies, and JR group own and operate trunk lines and Shinkansen, whereas private companies mainly operate intraregional lines. Only JR Central was categorized as “S”, and it can be considered that JR Central does not have an incentive to diversify its business broadly because of the high ridership of Shinkansen.

In terms of the interregional comparison, we considered three areas: Tokyo, Nagoya, and Osaka. From this comparison, two findings were derived. First, railways operating in Nagoya, such as Meitetsu, have an incentive to diversify their business broadly because, in contrast to Tokyo and Osaka, the modal share in Nagoya is dominated by vehicles, with rail holding a smaller proportion. Second, railways in Tokyo and Osaka had the same trends in diversification strategies. However, total and household populations are projected to

decrease considerably in Osaka and, as a result, railway companies operating in Osaka will need to diversify their business to boost their revenue in the future.

The relationship between profitability and diversification is considered, but it does not support the findings by Rumelt (1974) and other previous studies. We provided the possible reason that the diversification business of private companies has entered a mature phase, with companies seeking other revenue from unrelated business. However, more consideration of this theory is required in future.

More specifically, our future assignments are as follows. First, more railway companies should be included in the analysis, especially JR group. By including other JR group (Hokkaidō, Shikoku, and Kyūshū), characteristics of their diversification strategies can be derived. Second, the results in this paper should be verified by interviews with railway companies.

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