

Urban and Regional Railway Transportation

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Issues

- Analysis of JR East.
- Analysis of JR Kyushu
- Shinkansen – past, present, future
 - SATO, Nobuyuki (2015)
“History of the Shinkansen”,
The Chuko Paperback
No.2308 (J)

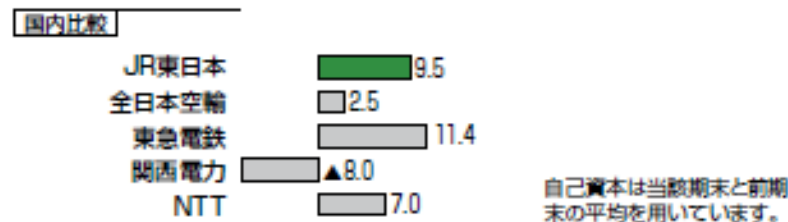
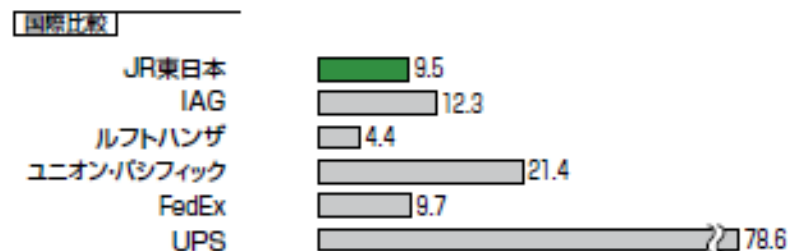


Overviews

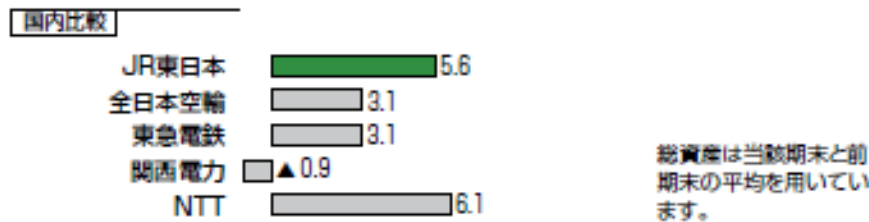
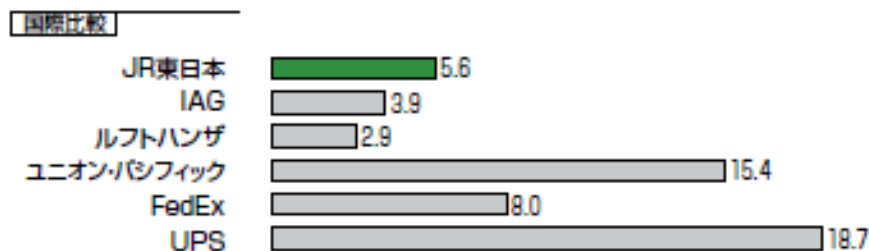
- Japan Railways, acquire revenues mostly from urban area and Shinkansen.
- Many commuting railways are operated in private sectors around major cities.
 - Keio, Odakyu, Tokyu, Seibu, Keikyu, Keisei, and Tobu for Tokyo
 - Meitetsu for Nagoya
 - Kintetsu, Hankyu, Hanshin, Keihan, Nankai for Osaka, Kyoto, and Kobe
 - Nishitetsu for Fukuoka
- Subways are operated by semi-governmental companies in Tokyo, while they are directly run by local municipals in other major cities.

JR-East's ROE is around 10%

○自己資本当期純利益率(ROE)(%)



○総資産営業利益率(ROA)(%)

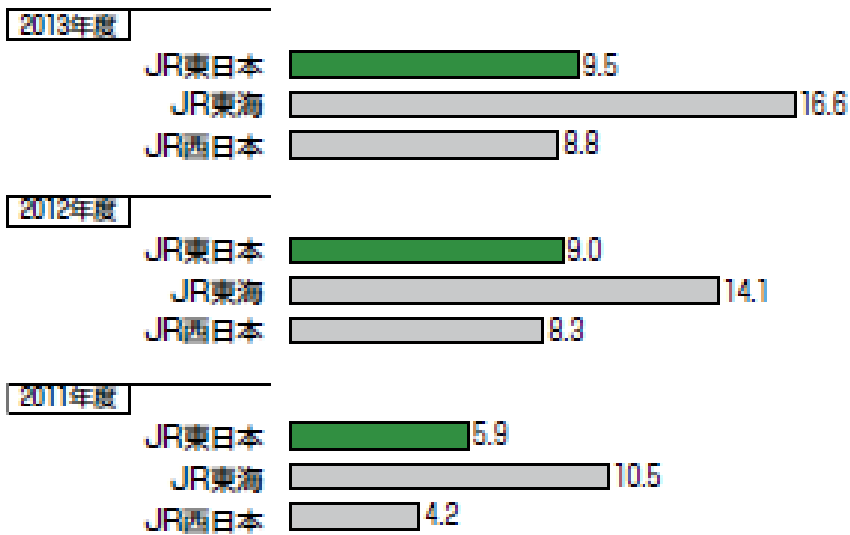


2014年3月期 (IAG、ルフトハンザ、ユニオン・パシフィックおよびUPSは2013年12月期、FedExは2013年5月期)

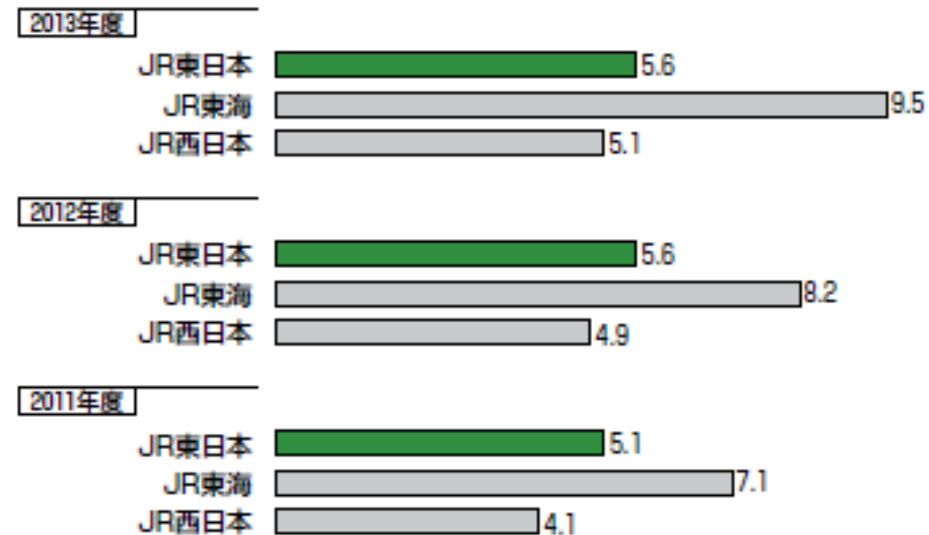
1. 各社のアニュアルレポートまたは連結決算短信をもとに作成しています。
2. 換算レートは2014年3月期末の英米レート(1米ドル=103円、1英ポンド=1.66米ドル、1ユーロ=1.38米ドル)を用いています。
3. IAG(International Airlines Group)は、2011年1月に英国航空とイベリア航空が経営統合して設立された航空会社です。

Comparison among the Three JRs

○自己資本当期純利益率(ROE) (%)



○総資産営業利益率(ROA) (%)



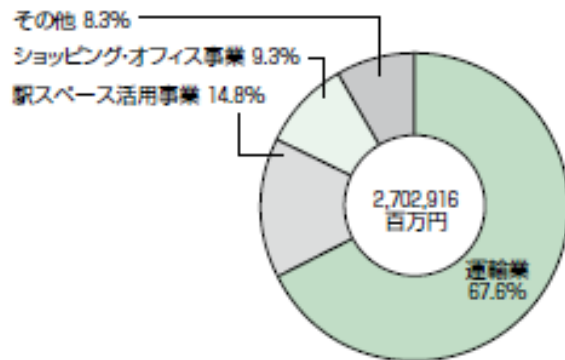
JR-Tokai 's rate of return is the highest, mainly because Tokaido Shinkansen generates large profits.

Profit Resources for the 3 JRs

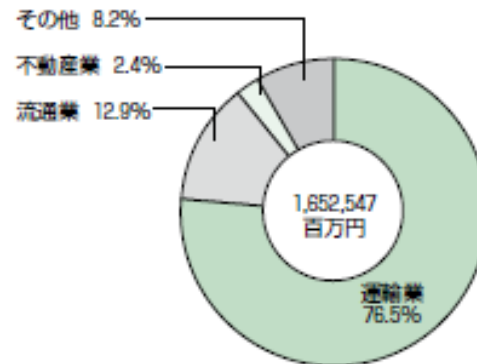
● 主要運輸事業各社の連結セグメント別営業収益

出典: 各社決算短信(2014年3月期)

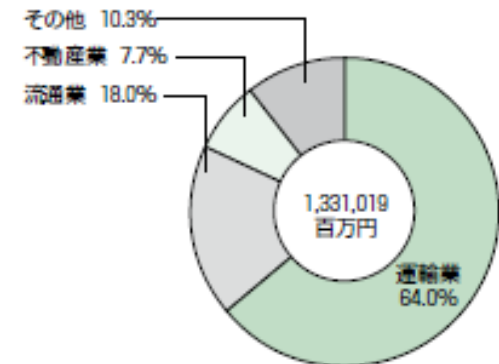
○ JR東日本



○ JR東海



○ JR西日本



More than 2/3 of the profits was acquired from the transportation business.

Transportation Revenues from Regular Trains and Shinkansen

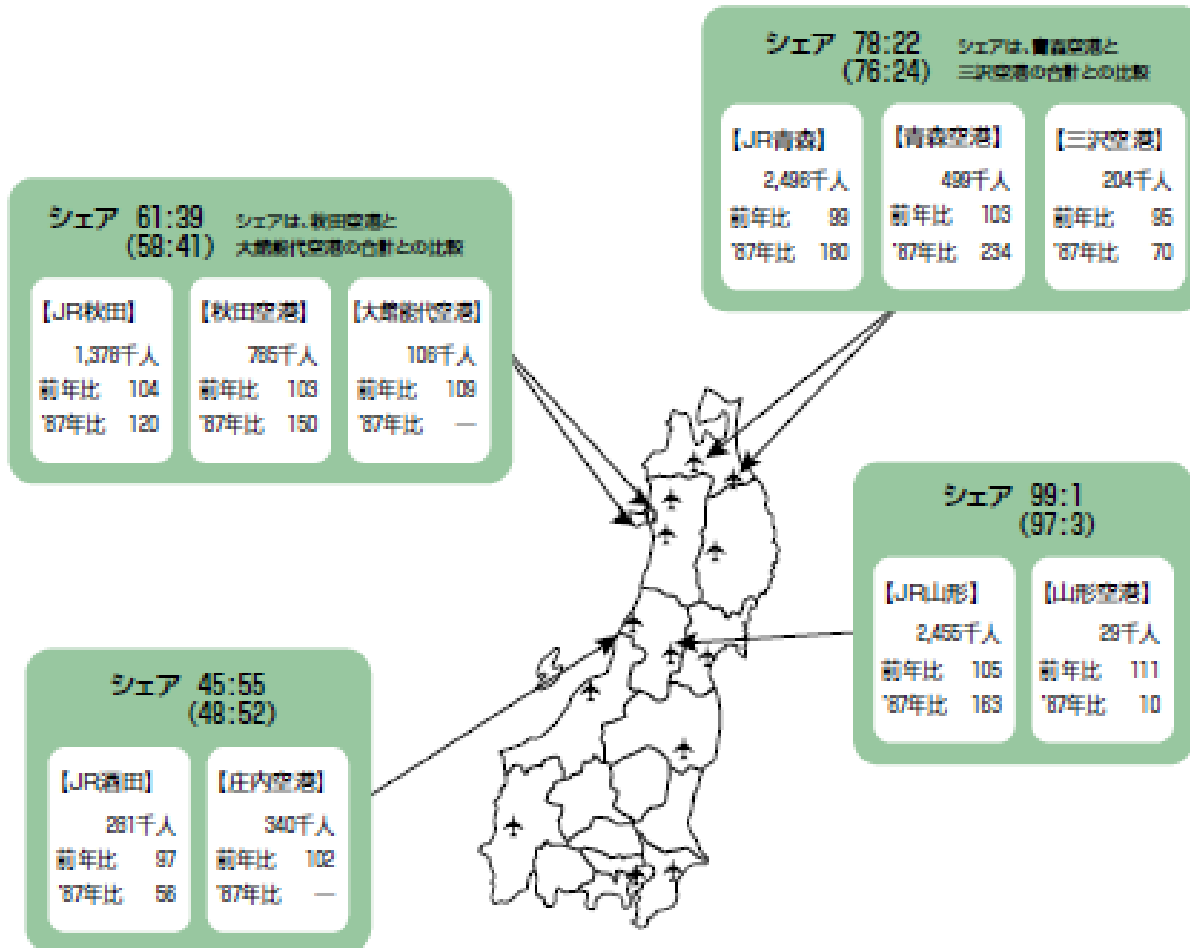
● 運輸収入の推移

(単位:億円)

年度		1987	2009	2010	2011	2012	2013
新幹線	定期	15	227	227	224	227	228
	定期外	3,102	4,167	4,088	4,172	4,693	4,843
	合計	3,118	4,395	4,315	4,396	4,920	5,071
在来線	定期	3,957	4,689	4,683	4,601	4,646	4,579
	定期外	6,940	7,322	7,091	6,954	7,248	7,313
	合計	10,898	12,011	11,775	11,556	11,894	11,892
小計		14,016	16,406	16,091	15,952	16,814	16,964
荷物運賃		5	2	0	0	0	0
合計		14,022	16,408	16,092	15,953	16,815	16,965

More than 20% of revenues are generated by the Shinkansen for JR-East.
The share is even larger for JR-Tokai.

Share of JR-east in the Tohoku Region



The passengers of JR account for the total passengers in the Tohoku Region by

- 78% for Aomori
- 61% for Akita
- 45% for Sakata
- 99% for Yamagata

Shinkansen

- History
 - Tokaido (Tokyo – Osaka, 1964)
 - Sanyo (Osaka – Hakata, 1975)
 - Joetsu (Tokyo- Niigata, 1982)
 - Nagano (Tokyo – Nagano, 1997)
 - Tohoku (Tokyo – Morioka, 1982 – Aomori, 2010)
 - Kyushu (Hakata – Kagoshima, 2011)
 - Hokuriku (Nagano – Kanazawa, 2015)
 - Hokkaido (Aomori-Hakodate, 2016)

新幹線路線図(2016年3月現在)

- 営業中
- 建設中・予定



Shinkansen Map

<https://www.nippon.com/ja/features/h00077/>

History of JR

- JR was originally a government-own company, providing railway train services for all over Japan.
- In 1987, JR was privatized and divided into
 - JR Hokkaido
 - JR East (listed on TSE 2002)
 - JR Tokai (listed on TSE 2006)
 - JR West (listed on TSE 2004)
 - JR Shikoku
 - JR Kyushu

The three-Island companies

- When JR was privatized, the 3 JRs in Hokkaido, Shikoku, and Kyushu, were projected to suffer deficits, due to low local demands for train transportation.
- Then the government founded the Stabilizing Management Fund (SMF), a special fund to financially support the three companies.
- Among the three island companies, the shares of JR Kyushu were listed on TSE in 2016., which means that the company was fully privatized.

Shinkansen under privatization

- Right after the privatization of JRs, Shinkansen was held by the Shinkansen-owning Organization, which leases the shinkansen to each area company.
- The initial rents (1987) were set as 416 (billion yen) for Tokaido, 94 for Sanyo, 134 for Tohoku, and 64 for Johetsu.
- However in 1991, they were sold to each company at a price 5.1 (trillion yen) for Tokaido, 1 for Sanyo, 3.1 for Johetsu and Tohoku , reflecting the profitability of each shinkansen line.

How to finance construction

- Originally, all the shinkansen were built as public investments, financed by issuing debts and being paid back from their operation revenues.
 - For the original Tokaido shinkansen, the construction was largely financed by the borrowing from IMF.
- Today, Shinkansens are built partly on the burden by the local governments.



JR Kyushu

- Today, JR Kyushu is quite steadily managed.
- Kyushu shinkansen is a quite successful investment, because the population along the shinkansen is large enough not to separate local lines.
- The company was renowned for its sight-seeing train services, symbolized by the success of the *Seven Stars in Kyushu*.
- However, its benefit/cost margin is still low, reflecting the deficits of most of the local lines.
- The company's equity ratio is around 70%, while it is accounted by the value of the Stabilizing Management Fund (SMF) by 40%.
- The average annual rate of return of the SMF is 3%, higher than the JGBs, meaning that the company is subsidized by the government.

Shinkansen in the Future

- The following shinkansens are now under construction.
 - Hokuriku (Kanazawa – Tsuruga, 2022 - Osaka)
 - Kyushu West (Tosu - Nagasaki)
- These Shinkansens are expected to yield limited gains for the company and the local people.

Some Shinkansen plans are strongly opposed by local people

- High construction costs
 - local governments will be burdened with 1/3 of the construction costs.
- Separation of local lines from JR
 - After shinkansen is built, local alternative trains will be separated from the area JR company, and be operated by 3rd sector companies sponsored by the local government.
 - In most cases, the new company charges higher fees for the commuters.

Costs and Benefits of building a new Shinkansen

- A new shinkansen creates gains for passengers (traveling faster and quicker).
- Then JR can charge higher prices for Shinkansen passengers, and acquire higher profits.
- However, shinkansen often deprives local trains and flights of their customers.
- Construction itself creates a huge profit for developers and construction companies, which may not be balanced with the loss associated by demand shifts.

Case 1: Kyushu West shinkansen

- Kyushu shinkansen is scheduled to be extended to cover service for Nagasaki in the next few decades.
- The extension is expected to bring a large gain for people and companies located in Nagasaki prefecture, while it benefits Saga prefecture a little.
- However, the extension runs more in Saga than in Nagasaki, and the construction costs will be charged more to Saga than to Nagasaki prefectures.
- Therefore, people in Saga are reluctant to approve the plan.

Case 2: Hokkaido Shinkansen

- In March 2016, JR Hokkaido started the Shinkansen service for passengers between Aomori and Hakodate.
- The service will be extended to Sapporo in 20 years.
- The Hokkaido Shinkansen is expected to yield deficits because the expected number of passengers are too small to cover its operation costs.
 - Other shinkansens create substantial surplus to offset the deficits run by the existing local services.
 - Tokaido and Sanyo shinkansens create large surplus for JR Tokai and JR West.
 - Visitors to Kanazawa and Toyama have shifted from flights to shinkansens, while visitors to Hokkaido won't.
 - The situation is expected to be only slightly improved by the extension to Sapporo.

The Linear Chuo Shinkansen

- JR Tokai has developed a new technology to let shinkansen run faster than 500km/h.
- The company has been testing it in the test course built in Yamanashi prefecture.
- The service is scheduled to start in 2025.
- It connects Nagoya to Tokyo only for 40 minutes!
- It will be extended to Osaka in 2045.

Why *Linear*?

- Economic impacts of the linear Chuo shinkansen are huge.
 - Wealthy people can live in Nagoya and commute to Tokyo to work.
 - The cities along the Chuo shinkansen will be developed as residential and commercial areas, comparable to major Tokyo cities.
 - For example, Kofu of Yamanashi prefecture can be reached in 15 minutes from Shinagawa, although it takes more than 90 minutes from Shinjuku now.
- This is the reason why JR Tokai has decided to pay all the construction costs expected to reach 10 trillion yen by itself!