Report to The Treasury

C O N F I D E N T I A L
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The Privatisation of New Zealand Rail

Part 1

Assessment of History, Markets and Data

Prepared by: New Zealand Institute for the Study of Competition and Regulation Inc.
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Structure and Personnel

The New Zealand Institute for the Study of Competition and Regulation Inc. was established in February 1998 to conduct empirical and conceptual; research on competition and regulatory issues. It has a broad mandate to conduct research in any area of organisations and markets that are determined to be of interest. The central area of expertise is economics but other subjects, such as law are important to many of the ISCR's projects. The research outputs are available on the ISCR website. ISCR also produce seminars on its research.

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Without the full commitment from the subject organisation a review such as this would not be as rich in either data or insights into the way the privatisation evolved. Tranz Rail have been exceptional in their support, in providing unrestricted access to information and physical facilities.

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Introduction

1 Introduction - Study Objectives

The Treasury requested tenders for an empirical evaluation of the impact on the New Zealand economy of the privatisation of NZ Rail Limited, now Tranz Rail Ltd.

Their terms of reference were to:

- determine the nature and extent of the economic welfare gains and losses resulting from the privatisation
- identify which groups have gained or lost,
- estimate the quantum of the gains or losses, and
- analyse in depth the decision and consequences of the privatisation.

The aim of the review is to determine whether the privatisation of NZ rail was in the public interest and to provide input to examinations of welfare changes associated with privatisation more broadly.

Methodology

2 Methodology

The terms of reference were that the full study should be conducted in 2 stages and that both stages should be based upon the methodology of cost-benefit analysis. In addition, there should, in the first stage, be a strategic and industry analysis that places the evaluation of privatisation in a perspective that enables the key determining features of the measured outcomes to be identified. The methodology of "cost-benefit analysis" is more or less that which is described in the *Review of Methodologies for Estimating the Welfare Impacts of Corporatisation and Privatisation* (the *Review*).

2.1 The Approach

In conducting its evaluation, ISCR adopts the cost benefit approach to evaluation, bearing in mind that the evaluation is *ex post*, whereas standard cost-benefit analysis is conducted on an *ex ante* basis. The ISCR evaluation follows the broad guiding principles of the *Review*, but not slavishly. It is not proposed to expend effort on financial ratio analysis excepting in the problematic event that it can lead to interpretable performance benchmarking. In addition, the nature of the market (the extent of competition, for example) will be carefully taken into account in the design of the specific measures and techniques used in the productivity and cost-benefit calculations.

While the ISCR methodology of the cost-benefit calculation is well illustrated by the study of Boles de Boer and Evans ("The Economic Efficiency of Telecommunications in a Deregulated Market: the case of New Zealand", *The Economic Record*, 72, 24-35, 1996), it was necessary to develop specific aspects of the work to fit the key characteristics of the rail transport industry. In particular, the specific political, regulatory and competitive environments within which NZ railways functioned prior to privatisation have been quite different to Telecom New Zealand. The strategic and industry analysis will lay the basis for the particular method of implementation in the evaluation.

In order to address the overall goal of the study, the evaluation is a little more explicit about the need to understand the alternative competing modes of transport than is suggested in the scope of Stage 1. Alternative modes affect the regulatory and competitive environment and these, in turn, importantly affect strategic decisions and performance. They also affect the specific techniques used in cost-benefit analysis (see Evans' comments on the *Review*).

It was agreed that at the conclusion of Stage 1 ISCR would report to The Treasury its assessment of what can be achieved and what is appropriate for the measurement of the incidence of costs and benefits of privatisation. It would then consult with the Treasury in order to determine an agreed approach to the assessment of the incidence of benefits and costs.

2.2 This Report

This is the final report for the stage one review and provides ISCR conclusions and recommendations on a structured approach to stage two.

Precis

3 Precis - Stage 1

Market Share

As a result of deregulation overall freight and passenger market share steadily declined until 1993 when NZ Rail Ltd. was sold to Tranz Rail Holdings. For a variety of reasons it is difficult to assess market share, however between 1983 and 1993 about one half of rail's long haul market share went to their competitors.

Financial

Partly because of the market consequences, rail's financial performance was a disaster. Revenues were halved and by 1989 large operating losses and interest on investments generated a debt of $1.2 billion that could not be sustained.

Restructuring

Restructuring entailed significant investment, layoffs of rail staff and a dedicated focus on the core business of rail that required high quality management and sharp incentives for them.

1989 Position

The crisis came to a head in 1988

- its market position had been drastically reduced by competition.
- it had an uncompetitive cost structure
- it lacked the strategy and the capability to succeed.
- it had diversified into property to a small extent and this had detracted from its focus on its core business.

Ownership

In late 1988 it was decided that NZ needed a viable rail system and if it was to survive, the core rail business should be privately held. In 1989 a plan to ready the company for privatisation was put into place.

Core Rail Business

Organisational, financial and cost restructuring in 1990 led to the creation of a "saleable" core rail business, however for a number of reasons rail's deteriorating performance in their product markets did not stabilise until 1993.

Privatisation

The sale of NZ Rail Limited to TranzRail for $400m coincided with an improvement in both market share and financial performance. These improvements came from a successful marketing strategy targeted at the long haul of bulk commodities and in the distribution of door-to-door goods.

Performance

Passenger services have shown a turnaround in demand volumes and financial performance, while operational efficiency has been improved significantly. This has been achieved through shedding (mainly staff) costs, implementing service enhancing customer and operational systems as well as targeting technology investments.

Counterfactual

In the 110 year period prior to 1993, rail's performance under a number of corporate organisational forms did not lead to a viable business. If public ownership had continued past 1993, then, given management of rail since 1880 and the deregulation of all modes of transport since 1984, the counterfactual would be at best captured

for the long term by Trans Rail having a break even economic surplus.

Stage 2 Recommendations

Stage 2	Proceed with stage 2
Data	Data and information are available and are of very satisfactory quality for studies of this sort.
Segmentation	Use a segmented multiple output market approach for outputs
Counterfactual	• Start with the 1993 surplus and deterioration from that date onwards until break even is reached • Breakeven from some date such as 1998.
Privatisation Decision	Evaluate the economic efficiency of the 1988 decision to invest capital, restructure and privatise the company.

Historical Review and Analysis

4 A Brief History

Railways Dept

The business now conducted by Tranz Rail Holdings Limited and its subsidiaries can be traced back to the construction and development of the original railway network in New Zealand beginning in the late 1870's. The Railways Department controlled all freight and passenger railway operations in New Zealand for much of the first three quarters of this century, and from 1962 it also operated a ferry service between the North and South Islands.

Railways Corp

In 1982 the Railways Department and the InterIsland ferry service were formed into a Government-owned corporation named New Zealand Railways Corporation. Following a 1983 operational review by Booz Allen, the Corporation internally restructured the railway and ferry operations to conduct business more efficiently. The goal of the restructuring was to lower costs and compete strongly for freight business by means of investing in modern plant, developing the property side of the business and reorganising management accountabilities into lines of business. Also diversification from core business was proposed. Much of the restructuring was driven by the deregulation of ports, sea and, particularly, the road transport of freight and passengers.

NZ Rail Limited

In 1990 New Zealand Rail Limited was incorporated as a limited liability company wholly owned by the Government. The Government transferred all of its rail and ferry assets and related liabilities to NZ Rail Ltd. and restructured the rail balance sheet by writing off approximately $1.2bm of debt accumulated during the 1980's. Other non-core assets (mainly property) remained with the Railways Corporation for disposal. The Government retained ownership of the land on which the rail assets were situated and leased the land to New Zealand Rail Limited. The creation of NZ Rail in 1990 was accompanied by a further internal reorganisation of management.

Tranz Rail NZ Ltd.

New Zealand Rail was purchased in September 1993 by Tranz Rail Holdings. Tranz Rail's principal shareholders included affiliates of Wisconsin Central Transportation Corporation; Berkshire Partners LLC; and Fay, Richwhite & Company. In 1995 New Zealand Rail Limited became Tranz Rail Limited and in 1996 the Company went public, listing on the New Zealand Stock Exchange. The listing was accompanied by a "re-branding" of the internal lines of business into business units and a tight focus on service and customers.

The Environment

5 Background and Environment Review

This section is most important because the fortunes of Rail in the 1980's were almost entirely at the mercy of a range of market forces at work in New Zealand. Rail had always served varying mixtures of commercial and social goals and through its history was unable to take charge of its own destiny.

This history, and especially the period from 1980 onwards, is a significant factor in the approach that was taken to its privatisation. Left on its own to survive in a deregulated environment rail had to restructure what was left of the past and make a commercially viable business. As will be seen, deregulation of the freight market had a major effect, and was almost the sole determinant of the performance of the Railways Corporation. In fact, it very nearly led to the Corporation's collapse.

This section therefore describes the background, and the sources of the changes that took place in rail from 1983. The sources of change fell broadly into three categories, as follows:

- **political economy** which shook the industrial structure of New Zealand in the 1980's and initiated widespread economic restructuring.
- **less regulation** of industry combined with open, competitive product markets.
- **excess resource levels** within the rail business, relative to the outputs they delivered: railways were over-resourced and had to change.

5.1 Political Economy

State Involvement

Traditionally, in New Zealand, the State has had a very active and major role to play in the nation's economic affairs. Particularly since the 1930s, the economy had been heavily regulated. Intervention included among other things, state provision of goods and services, the detailed regulation of economic activity (including decisions on production and pricing) and import and foreign exchange controls. Government ownership was also extensive and included banking, insurance, health, education, transport, energy and utilities (Evans et al, 1996).

Slow Change

From the 1960s, and particularly from Britain's entry to the EEC in 1973, the economy was viewed as under performing and agitation for a change in direction grew. The National Government during the 1970s in finance and in the early 1980's in transport made tentative moves towards deregulation. Deregulation during this period was particularly slow and according to Bollard & Buckle (1987) the outcome was a mix of regulatory reform and further intervention. During the latter part of National Government rule in the 1980s, regulatory measures were enforced in financial systems and a price freeze was applied. Although the foundation for land transport deregulation had been laid while the National Government was in power, their later term, to 1984, cannot be seen as a period of deregulation.

1984 Election

The 1984 general election brought the National Government's three-term rule to an end. The Labour Government, successors to National, brought not only a change in political leadership but established a range of major reforms. Their aim was to achieve a competitive environment in which markets could operate freely from intervention by government, (Evans et al:1996), and redistribution would be managed through the tax, health, education and social welfare programmes.

The reform period is described by Evans et al (1996). It included the introduction of the revised competition statutes with the Commerce Act 1986; and major restructuring of the state sector (Boston & Holland:1987). Regulatory reforms were implemented in the energy and transport sectors as well.

SOE's

Restructuring the State sector meant that there were major reforms to Government departments and trading departments were converted into State Owned Enterprises (SOEs). The 1986 State Owned Enterprises Act required each SOE to function as a business with clear commercial objectives, and established a Board of Directors who were accountable to the Minister of Finance and another shareholding minister . By 1987 there were 14 SOEs and by 1992 27 had been formed. According to Evans et al (1996) there existed differences between SOEs and privately owned firms, that led or would lead to performance problems of SOEs relative to privatised companies. Awareness of these provided the impetus for privatization which commenced in 1987 with the partial privatisation of The Bank of New Zealand.

Further legislation aided reform. In April 1988, the State Sector Act was passed and a year later the Public Finance Act 1989, which gave government departments clearer management goals and greater management independence to carry out their agreed functions.

The 1990's

The year 1990 saw yet further political changes with the end of the fourth Labour Government and the beginning of the fifth National Government. With the foundations laid by Labour for a deregulated economy, National continued in much the same way, though at a slower rate. In 1991 the Employment Contracts Act was introduced, which abolished compulsory unionism, facilitated employer-employee individual contracts and ended centralized wage setting.

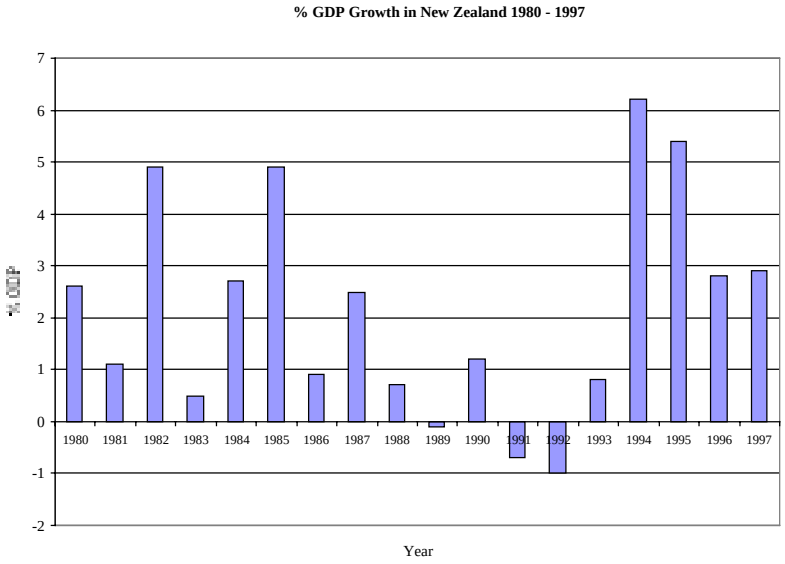
Overall, the period from 1984 until the early 1990's saw dramatic and wide reaching changes to all sectors of the economy which have contributed to a much less regulated economic environment.

5.2 Economic Overview

Pre 1984

New Zealand's economic position, leading up to the 1984 election, was not strong. Public and private sector foreign debt combined, rose from 11 percent of GDP to 95 per cent between March 1974 to June 1984, and similarly net public debt increased from 5 percent of GDP to 32 per cent during the same period. Annual inflation was high throughout the whole period of December 1973 to March 1983. Consequently in April 1983, New Zealand's AAA credit rating was downgraded to AA+ on sovereign external debt (Evans et al, 1996).

These factors led to the reforms described above. According to Boston and Dalziel (1992) it was almost universally accepted that inconsistent macroeconomic policies in the 1970's and early 1980's had contributed largely to the economic crisis in 1984. However, economic growth throughout the 1980's and 1990's has been variable. There was negligible growth in the recession of the 1988-1992 period.



source: Statistics NZ and NZIER.

1987 Crash

Following the stock market crash of 1987, economic growth for 1988 fell dramatically and in the following two years New Zealand faced negative growth. The graph indicates New Zealand's GDP growth over this period to the present day.

5.3 Road Transport Deregulation

Deregulation of the road transport industry in New Zealand began in 1983 with the removal of road transport licensing. Prior to this, the industry had been heavily regulated since the nineteenth

century, with government owning and regulating major transport operations in all modes. In order to protect Government railways against increasing road competition and for the asserted reason of establishing price stability in the freight transport industry, a restriction on the length of haul for road freight was introduced in 1936. The restriction, which applied to almost all goods, began at 30 miles and was increased to 150 km in 1977.

Licensing

Quantitative licensing also regulated the heavy freight transport industry by simply restricting the issue of licenses, making it difficult for those wishing to enter the industry. New entrants not only had to prove that there was a need for their services, but also that they would not disadvantage existing operators. Operational efficiency was affected by reduced competition from regulatory "tagging" of freight movements to a company, route, area and/or commodity. Under this regulatory combination, rail faced very limited competition for long distance freight traffic. Where competition did exist between road and rail (i.e. less than 150 km and for exempt goods), road transport rates were within limits prescribed by the Ministry of Transport (MOT) that were determined on a cost-plus basis.

In New Zealand, the 1980's saw rapid political and economic change, as well as advances in global transport technology. According to the MOT (1995), these changes "made Government ownership and control of transport philosophically unacceptable and operationally impractical" (Ministry of Transport 1995:8).

Legislation

In November 1983 the Transport Amendment Act (No 2) began the deregulation phase in New Zealand's road freight transport. There were two notable changes to the operation of the industry, firstly the quantitative road transport licensing system was replaced with a qualitative system on June 1 1984 so that the main issue of concern was the fitness of the applicant to run a trucking service, and secondly the 150 km restriction on road carriage began to be phased out.

Although the route, distance and price constraints had been removed on 1 November 1983 under the Transport Amendment Act (1983), where road haulage was in competition with railways beyond 150 km distance, operators were still required to pay for a permit from the Ministry of Transport. This phased withdrawal of the 150 km restriction meant that operators were still charged for a permit but on a per tonne-day basis. When these permits were completely phased out in October 1986, entry to road transport became totally unrestricted.

In parallel with this, the removal of import restrictions facilitated the importation of secondhand trucks and reduced trucking costs more generally.

Ports and Shipping

As part of the general economic reform and the reduction of the level of intervention, the Government identified the need for major reform in both ports and the shipping industry. The port operations

were viewed as costly, inefficient, overstaffed and plagued by industrial disruption. Two priorities were established as a result of the On Shore Costs Study (Ministry of Transport:1984). These were to change the way in which various statutory authorities operated on and around the waterfront, and to normalise employment procedures.

The Ports Reform Bill, introduced in 1987, provided for the corporatisation of the regional harbour boards and the Ports Companies Act 1988 led to the formation of separate port companies in each port. The New Zealand Ports Authority was also abolished during 1988. In 1989 ownership of the port companies was initially transferred to the new regional local government bodies but since then four port companies have been listed on the New Zealand Stock Exchange.

Waterfront reform

The second priority of normalising employment arrangements began with the 1989 Waterfront Industry Reform Bill which abolished the Waterfront Industry Commission that administered the labour pool for waterside employees engaged by various stevedoring companies or container terminal operators. The original expensive pool system that still exists in Australia was replaced with normal employer/employee relations associated with permanent company employment. Other reforms such as the 1991 Employment Contracts Act affected all industries equally.

Air Transport

Although air transport was deregulated about this time it can be regarded as a separate market from rail. There would however be some substitution between these markets in passenger transport, particularly for inter island passenger transport.

5.4 Competitive Product Markets

Market Changes

Immediately following deregulation of rail's product markets, significant changes took place within the transport industry, some of which were expected, some quite unexpected. As will be seen the impact on rail business was dramatic. Because of the lifting of restrictions on road, a price war between road and rail freight operators broke out and freight rates declined for both modes of transport. Deregulation now permitted truckers to enter and leave the road transport industry reasonably freely, so rates were established by customers who used rate quotes to play one freight operator off against another, encouraging the lowest cost/most efficient operators to set the market price. Indeed, such is the cost structure for trucking that it comes close to being a perfectly contested market. Entry and exit are both at low cost. The analysis in this report treats road transport as a fully competitive industry from 1988.

Although competition and price declines occurred during the 1980's these intensified during the 1990's, coinciding with the increased importation of second hand trucks.

Market Impacts

Coupled with the price reductions, competition in long distance traffic arose, i.e. traffic beyond 150 km. As will be seen, both tonnes and tonne-kilometres of freight carried by rail started declining and both declining trends continued to the mid 1990's. Frith & Guria (1995) suggest that during the period after deregulation there was a shift in rail towards longer hauls with evidence for this shown in increasing average haul distances.

A more detailed analysis of the market and financial impact of deregulation is described in section 4.2 of this report.

To a somewhat lesser extent, coastal shipping also competes with rail. The New Zealand shipping industry has undergone a number of changes during recent times. It has also faced different types of intervention, for example, at one time Government regulation of coastal shipping forced operators to use locally surveyed vessels, and to employ New Zealand crews at local wage rates. One notable difference between land transport and sea however, is that shipping has not always been subject to quantity regulations.

Shipping Efficiency

The restructuring of the ports and shipping industry has resulted in a more competitive coastal shipping sector. Staffing numbers of coastal vessels dropping between 20-40% between 1989 and 1992 allowed real shipping rates to also drop and an increase in the number of operators in the coastal shipping industry in the 1990's resulted. It is estimated that there are about 10 different New Zealand shipping operators involving around 19 vessels transporting a range of general cargo, passengers, vehicles, petroleum products and cement along New Zealand's coasts.

With the introduction of the 1995 Maritime Transport Bill, foreign vessels coming to New Zealand in the normal course of their business are able to carry goods and passengers between New Zealand ports, adding yet another competitive layer to the coastal shipping sector. The volume shipped around the coast remained static and has had a peculiar, largely unchanged composition. Nevertheless as its shipments of coal exemplifies, coastal shipping does provide a competitive discipline in a number of product markets for both road and rail transport. As with road transport, entry and exit does not entail significant sunk costs and thus provides viable actual and potential competition.

5.5 Use of Technology and Labour

Rail Operations

At the same time as transport deregulation was being implemented the Board of New Zealand Rail commisioned a number of strategic, marketing and operations studies. The initial diagnostic review by Booz, Allen & Hamilton (1983) (BAH) provides a summary of the situation Rail were in with regard to their use of labour and technology as compared to modern transport practices. They concluded that NZ rail would be seriously challenged by the

deregulation of the market in November and that the infrastructure, equipment, work practices and staffing were at levels well in excess of that required to meet the levels of business existing in 1983, or that which could be expected in the future environment when the company was no longer protected from competition in long-haul traffic.

Investments

BAH also recommended that Rail invest in new infrastructure and that they target improvement of their economic advantage, namely their ability to move a large volume of freight per train on average.

Recommendations

Specific recommendations were as follows:

- **Significantly increase train sizes** (which necessitated investment in couplers, draft gear and passing loops).
- **Reduce the wagon fleet** by nearly two thirds (requiring investment in larger wagons and improving wagon utilisation).
- **Reduce the locomotive fleet** by nearly one half.
- **Adjust the workshops** to match the reduced workloads as a result of less equipment to maintain.
- **Reduce rail freight staffing** levels by approximately 40% from more than 20,000.

As will be seen the impact of the changes on infrastructure and labour was immense.

Organisational Review

6 Organisational Review

Overview

At the time of privatisation, NZ Rail was a Government owned limited liability company, organised into lines of business for managerial accountability. The lines of business or business groups had been used internally in one form or another since it was reorganised in 1984. This managerial reorganisation was the first of several leading up to privatisation but it was probably the most important. Before a post-1983 review is undertaken, it is appropriate to consider the long political and organisational history that Rail has had in New Zealand.

The Organisational Structure of New Zealand Railways in its First 120 Years

It is of more than passing interest to consider the organisational structures of New Zealand railways from its earliest days. The re-organisational changes that have taken place, the reasons for them, and the outcomes are of direct utility in establishing the counterfactual to privatisation.

5 Structures

While for much of the past 120 years New Zealand rail has been a government department under direct instruction of a minister, there were 5 attempts at establishing a corporate, or management board form. These were:

1889-1894	Railways Corporation
1925-1928	Railways Board of Management
1931-1936	Railways Board
1953-1956	Railways Commission
1983-	Railways Corporation

The precise structure of the first four organisational entities are described by Orr (1981) who draws out principles from his, and others, examination of these corporate episodes. The setting up of corporate structures was typically symptomatic of the state of the railways. For example, Orr reports,

"In 1880 the Civil Service Commission produced a scathing report on the Railways Department and it led to the setting up of a Royal Commission to investigate these criticisms. The Royal Commission's recommendations included reductions in staff, wages, train mileages and railway construction –"

1980 Review

By 1980 the familiar pattern of the previous 100 years had emerged. Deteriorating quality and financial position of the railways would precipitate a review that typically concluded that the railways should be run more as a business at arms length from political influence. Following the review some corporate form would be put in place that implemented recommendations. But progress was not maintained in part because of continuing political decision making, and this was reflected in the abandonment of corporate forms at the change of government.

Cross Subsidies

There were periods where the railways was used to cross-subsidise a number of activities and was starved of maintenance resources. It was generally subject to politically managed price control. The actual profitability of its core business over this period is difficult to determine because of the price control and various uneconomic activities that the railways were called upon to provide. But what is clear is that it struggled to be financially viable, even though from 1933 it had statutory protection from competition from road transport. Also, the evidence is that the reviews and subsequent corporate forms all had the objective of making rail a viable business.

Organisational Restructure

New Zealand railways has had episodes of organisational restructuring and revitalised investment, maintenance and staffing, in between which it has had a very bureaucratic structure that was under direct political influence. The fact that the corporate forms did not continue is indicative of unstable objectives for New Zealand Railways in public ownership. On the basis of aggregate financial data for the railways Orr (1981, p24 and 22) concludes that the corporate forms, relative to departmental forms, had been a success, but that their success and tenure was limited by their continued political dominance. The 1983 Railways Corporation was established after the period of Orr's (1981) analysis. Because it was never converted to a State Owned Enterprise (SOE) under the 1986 State Owned Enterprise Act but remained directly accountable to the Minister of Transport until its sale in 1993, history seems to have been repeating itself. In respect of performance only, Rail was required to report to the SOE minister.

Political Influence

The history of New Zealand rail suggests that the political connection has materially influenced rail's performance and inhibited attaining business performance objectives, except for particular episodes. It also suggests that the reviews and corporate episodes were in response to emerging problems and that they were focussed on attaining a viable business: there is no emphasis in these reviews placed on expanding the political, or social tasks rail was providing. This strongly suggests that where rail is not to carry political tasks, but is to perform at its core business that its best chance of success is for it to be separated from political control as much as possible.

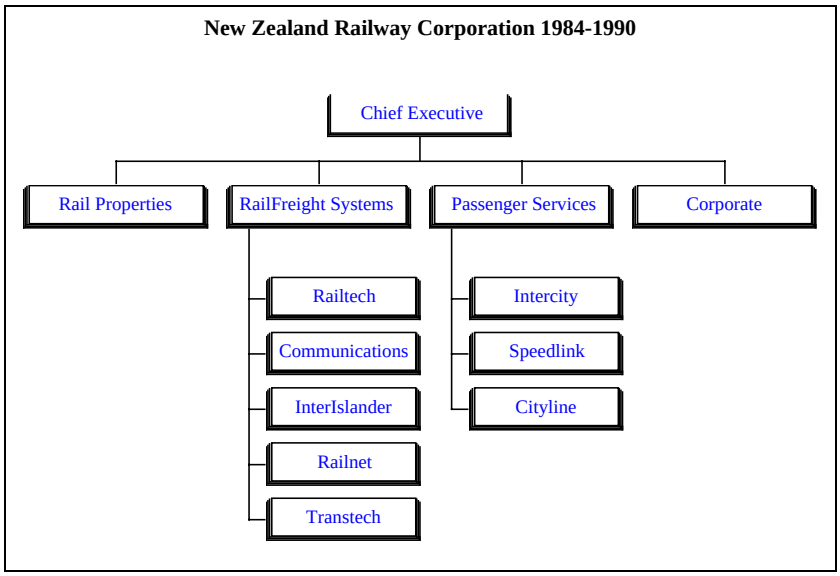
In short, history tells us that past indifferent financial performance of New Zealand rail has occurred despite prohibitions on entry to certain rail markets. It resulted from price control and from poor performance of the core business, independently of any non-business tasks it was required to carry out. It also indicates that corporate forms have improved performance but they have not been sustainable under government ownership. There is no reason whatsoever, to assume that the future under government ownership would be any different. The SOE model is the most determined attempt this century by the government to establish well-functioning state-owned businesses. While the model is not fully tested, the political connection and monitoring issues remain for these entities.

The history of rail will influence the choice of counterfactual to privatisation.

NZ Rail Corporation 1983 to 1990

BAH Report

The 1983 Booz Allen report had highlighted the weaknesses of the "pre-lines of business structure" where three senior officers reported to the General Manager and were responsible for a range of activities rather than specific outcomes. BAH maintained that the impending road transport deregulation required a structure with less political involvement and a commercial focus. The following managerial structure was set up inside the Crown Corporation legal structure that had existed from 1982.



Accountability

The 1984 changes were significant in the context of a report such as this because they overcame many of the managerial accountability issues that can cause inefficient economic performance in public enterprises. In terms of the "performance improving formula" that is applied to public corporations, the 1984 managerial changes delivered improved internal performance from a business point of view, 10 years ahead of the ownership changes. The 1984 changes not only allowed the business lines to focus on markets and their own specific performance but also encouraged the management of network operations to focus on the significant performance improvements that were required by the Booz Allen report to be delivered from that part of the business.

Unfortunately, management's understanding of and reaction to the deregulation of the freight market was inadequate. They could do little for nearly 10 years to halt the decline in market share and financial performance.

Transfer Pricing

Market segment orientated business groups inside RailFreight Systems were formed in 1988 to focus more sharply on the market share losses in particular markets. To improve performance business groups transfer priced their services out to each other and

were accountable for their "contribution" to the Corporation. While transfer pricing arrangements are often expensive and distracting in these circumstances, they were probably useful in directing managerial behaviour towards meeting customer needs and placing pressure on individual and group performance. For market and operational reasons, other internal changes were made to the management structure in the period to 1990 but none were as significant as the full corporatisation that took place at that time.

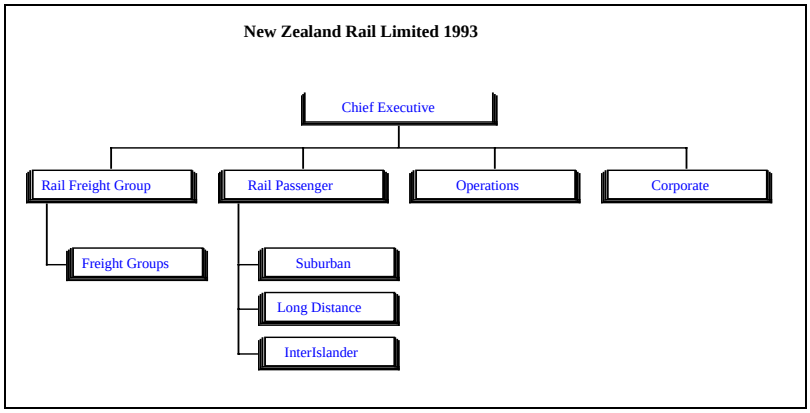
NZ Rail Corporation 1990 Onwards

The Core Business

The 1990 corporatisation represented the culmination of a number of reviews, that considered operational, financial and organisational dimensions. The basic need to be more responsive to the market and to have an efficient rail operation drove the changes. With privatisation a possibility, work had been undertaken by government and company management to identify the "core" business of the railways and it was these freight moving functions that formed the basis of NZ Rail Limited. InterIsland services as well as both long distance and local passenger rail services were also included in the new company. Non core business such as property, buses and parcels were left in the Railway Corporation as was ownership of the land the rails sat on. The legal restructure of 1990 followed with a financial restructuring that saw accumulated debts of $1billion retained in the old Rail Corp, a write down of the asset values into the new "books" of NZ Rail Ltd and an equity injection of $360m into the company.

Business Groups

By 1993 the structure of NZ Rail Ltd had narrowed into two market groups and an operations group that ran the network as a cost centre. Individual business lines inside the Freight Group were responsible for their direct costs and resulting financial contribution to the overall group and transfer pricing as a measurement device was scrapped. Legally, NZ Rail Ltd. was unchanged, and until 1993 it remained as a crown owned company. At the time of privatisation in 1993 managerial accountability was organised as follows:

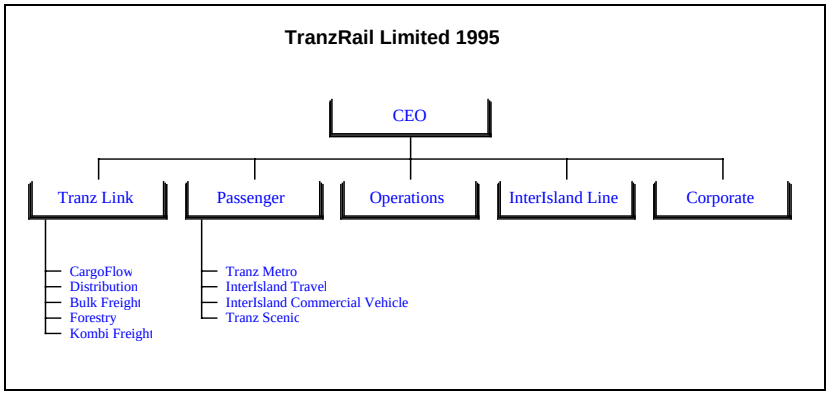


CEO

The NZ Rail Chief Executive was responsible to a Board of Directors, appointed by the Government as shareholder. With the NZ Rail Ltd. structure there was much less direct political involvement, however the rail business was still subject to intense scrutiny by government agencies and could not function independently, even as an SOE under the State Owned Enterprise Act.

Private Owners

Following the ownership change in 1993, the name NZ Rail Ltd and this managerial accountability structure were retained by the new owners until 1995 when a "re-branding" of the services supplied by the business units was implemented to change the company's image. At that time the name Tranz Rail NZ Ltd. was adopted, followed by the IPO of Tranz Rail shares. The basic business units were retained for competitive reasons (see 4.2.2 below) and the Cook Strait ferry service was established as a stand-alone business unit responsible for running that service. Within each business line, the service offerings were organised under the following structure. Each service is in effect a stand-alone marketing unit accountable for its directly controllable financial performance and with its own customers. The operations group continues to manage the rail network as a cost centre and rail ferry operations are managed inside the InterIsland line.



Management Accountability and Culture

Incentives

The impact of deregulation on rail from 1983 was significant in terms of market and financial outcomes but deregulation also had a major impact on how the business was managed. It is fair to record that management was seemingly unprepared for competition and that it took them too long to seize control of their destiny. In the context of privatisation arguments and the lack of incentives on public managers to set and achieve strategic goals, it is useful to consider why it took so long for rail management to grasp the 1983 deregulation.

The following table summarises the structural evolution of rail and considers a number of factors that are useful when reviewing managerial accountability.

Structural Evolution of Rail

	Government Dept	NZ Rail Corp	NZ Rail Ltd	TranzRail
Dates	pre 1982	1983 - 1989	1990 - 1993	1994 -
Strategy	unknown	reactive	prepare for privatisation	shareholder value
Legal Status	?	Crown Corp	Limited liability	Private Company
Control Structure	Minister is boss	Minister still boss	Treasury watches	Markets monitor
Political Influence	Very High	High	Arms length	Limited
Internal Structure	Functional	Business groups	Core Business focus	Marketing Units
Management Focus	Internal/technical	Restructuring	Survival	Customers
Product Markets	Controlled Entry	Deregulation	Contestable	Competitive
Decision Making	Controlled	Controlled	Limited delegation	Full delegation

Political Input

In the period prior to NZ Rail Ltd. formation in 1990 there was a great deal of political involvement in the rail business and management did not have the incentives to get on and manage it in a commercial way. In noting the significant deterioration in the financial outlook, the company in the 1986 business plan stated: "The general reasons for this situation have their origins in the former trading department, and since 1982, a Corporation, which was nominally commercially orientated, being subjected to Government policy totally at variance with this objective".

These political constraints included both the delegation of financial authority and the New Zealand Railway's Corporation Act 1981. In a repetition of four attempts since 1880, the 1986 Strategic Plan mooted a charter that formally set out relationships between the Corporation and the Government. Included was a proposal to increase the financial delegation limits to the Corporation and a review of the New Zealand Railway's Corporation Act 1981, which included staffing procedures. The Corporation felt that the system of wage fixing to which it was subject was inappropriate when it was acting as a profit making organisation rather than a government service department, and that the system was hindering the implementation of policies relating to procedural changes and staff reductions.

It is clear from interviews conducted as part of this review that the frustrations with the involvement of politicians in Rail Corp were felt as much at Board level as with the management. From 1988 several directors became quite active in promoting privatisation as a way of distancing Rail from those pressures.

Managers

It is interesting to reflect on the senior managers who led rail through the period from 1988 to post privatisation and the considerable number of new managers who were imported to Rail, almost all of them after the sale to private owners. Only Tranz Rail CEO Francis Small, who was pivotal to the restructure and sale, and Murray King, who was equally influential, remain as senior managers in 1998. A number of managers were bought into key positions after the sale. Since privatisation several senior managers

who were in Rail from 1988 have left while other managers such as CFO Ron Russ have been brought in to manage specialist areas.

Markets and Competition

7 Markets and Competition

Competition

The existence of competitive pressure, in some form or other, on rail is central to the analysis of effects of privatisation. An active and competitive product market is as important to the success of a privatisation as is making the organisation transparent to the capital and managerial markets.

Pre 1983

Prior to 1983 the market for moving freight was segmented by regulation and Railways did not have to compete inside their long distance market. They did not bother about formal segmentation; they just moved commodities for customers. After deregulation however Rail had to identify where its advantages lay and different market pressures forced them to decide which segments to focus on, and, as will be seen, they were forced to target their efforts to survive. Because of this critical fact, the targeted market segments are identified and taken to the market analysis in stage 1 of this review that is to be carried through to the stage 2 welfare analysis if that stage proceeds. Stage 2 needs to be done at this level of detail to identify the gains and losses from privatisation.

Segmentation

A review of the freight market has identified that the market for long haul freight movements, making up 70% of Tranz Rail revenues, has 5 fundamental characteristics that identify 3 segments, as shown in the following table. They are all long haul markets but with different characteristics.

Tranz Rail's tighter market focus in the 1990's has seen them manage in recognition of these segments. Examples of this can be seen in operational areas where;

1 it provides specialist trains by segment,
2 it established marketing units to manage the demands of customers in each segment and
3 it improved data recording and analysis to understand and respond to segment demands and performance.

Quite clearly these segments are not rigidly structured but they have evolved over time as Tranz Rail's understanding of segment characteristics has matured and as the market has evolved under competition. Also, as will be seen, the value and volume of business in these segments have changed, as a result of changes to technology, demand and relative prices.

Rail Freight Market Characteristics

Market Segment	Timeliness	Load Size	Average Haul	Handling Need	Handling Cost
Bulk Goods - coal - minerals - forestry - etc	less important	larger loads	up to 300km	seldom	tiny
Export Goods - import - export - agriculture	important	mixed - containers & break bulk	>300km	often at 1 end to customer premises	very small
Door-to-Door - wholesale - retail - refrigerated - Kombi	critical	smaller loads	500 to 800km	often at both ends to customer door	higher (inc door rail)

Passengers

The passenger business is easier to analyse, it naturally segments itself into simple passenger movements: long distance by rail, suburban by rail and InterIsland by Cook Strait ferries. Both market and welfare analysis will be completed on that basis. Because of the nature of these markets there is little substitution between them.

Market Evolution

The time dimension is also important in this analysis and the evolution of Rail over the period of this review falls naturally into 3 distinct stages, for the analysis of both the market and financial performance.

Phase	Market Outcome	TranzRail Outcome
Deregulation 83 to 88	long distance road transport deregulated	m/share collapsed, unit revenues fell
Rail survival 89 to 93	med growth, costs fell overall, some segmentation	focus on understanding the market & survival
Privatised 94 to 97	higher growth, segmentation	focus on volume growth and value by segment

Deregulation affected market and financial outcomes in the period to 1988 when Rail was in a financial crisis caused mostly by their exposure to competition. Political influence also played a part in railway's inability to deal with the competitive impacts. In 1988 they did recognise their plight and determined the only way to **survival** was to focus absolutely on the market segments that they had advantage in and to restructure their finances and the organisation in a way that enabled targeting customer requirements in these segments. Documented evidence from both business plans and other papers show that the objective of privatisation was also accepted by the company in that year. Their objective was met in 1993 when NZ Rail Ltd. was sold and the **privatised** period 1994 to 1997 is obviously a phase in its own right.

Coastal Shipping

On a strict tonnage measurement basis, compared to rail and road, a large amount of freight is moved by coastal shipping. Coastal shipping volumes have been stable between 12 and 14 million tonnes per year since the early 1980's as follows;

tonnes	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Rail	8.9	8.6	8.3		8.7	8.5	9.4	9.6	10.3	11.5
Coastal Shipping	13.6	14.5		13.3	13.8	14.3	14.3	13.2		

The tonnage carried on coastal ships could be seen as direct competition to Rail particularly in the coal and other goods categories. While coastal shipping will offer price discipline for rail, the nature of the freight moved by sea is quite specialised and has a consistency in the mix of commodities moved over time. It is excluded from the market share calculations for Tranz Rail.

Commodity Mix % - Coastal Shipping (tonnage)

	1984	1992
Cement	10.8	7.4
Coal	0.0	0.1
Petroleum	57.5	64.1
Sand/Shingle	0.8	2.2
Grain	0.3	0.0
Motor Vehicles	5.1	5.7
Containers	4.1	3.6
Other Goods	21.4	17.1

Note that more recent data than 1992 is not available

It is well known that even the threat of entry can discipline market pricing [Baumol, Panzar and Willig (1982)]. There are not significant sunk costs to entry and exit of coastal shipping. It carries more tonnage of long-haul outputs than does rail albeit that there is some specialisation in product (see petroleum). Thus, coastal shipping will provide an important ceiling on pricing of rail freight and may explain why the real price of all rail products have moved downwards since the mid 1980's. In an actively contestable market it could be expected that market share would be volatile over time. The stability of coastal shipping's products suggests that there are intrinsic characteristics, such as location, that provide differentiation between rail and shipping. Nevertheless rail pricing is constrained by the efficiency of coastal shipping.

1983 to 1988 - Deregulation

Pre 1983

Prior to deregulation in 1983, Rail had the market for transporting freight over longer distance substantially to itself. Market segment analysis of the 1983 to 1988 period is a little more difficult than in later periods due to the shortage of data and the undifferentiated approach to the market that Rail had at that time. Market share estimates and overall output measure comparisons are the best information that are available for analysis of this period.

Market Share

Market share was, and still is, difficult to measure in the freight business, mostly because of the lack of a common unit of output across the industry but also because of the lack of record keeping

and the unwillingness to share information on the part of the trucking industry. The only data on trucking are surveys that are carried out for specific purposes and do not easily permit comparison over time. Because detailed road transport data is not available for this period, use is made of the Statistics New Zealand Enterprise Survey, which reports industry revenue data rather than output volume but is none-the-less an adequate indicator of relative share.

That data puts rail share of the total freight market at greater than 30% in 1980 and it portrays a short haul market dominated by road transport that was, in revenue terms, about twice the size of the Rail dominated long distance market. By 1988, and still mostly in the long haul business, rail had lost nearly a third of its freight business in a very short time. This is measured by share; the absolute amount lost is clearly less.

Using the cited Statistics New Zealand revenue data, analysis reveals a decline in rail freight revenue (in constant $) versus an increase in road revenues. This simple comparison highlights the dramatic real market share loss that rail experienced in the 1980's.

Outputs - Volume

Overall freight market size (and share in later periods) have been estimated using data on the tonne kilometers purchased from NZLTSA as road user charges. The data is adjusted for both truck utilisation over time and the average tare weight of trucks to calculate a net tonne kilometer that can be compared to rail NTK's (Number, Tonnes Kilometres). It is now accepted that the NZLTSA data of road user charges understates the actual tonne-kilometers travelled by trucks, with estimates of the understatement put as high as 12% (this figure is from a study by the NZLTSA in 1997). Although road user charges were implemented in 1984 detailed data is only available from 1986 onwards. It shows a sharp expansion in market size took place in 1988 and that road transport share grew. As shown below, rail's share and tonnage fell throughout the period.

	1986	1987	1988
Market Size (m NTK)	10,700	10,800	11,800
Growth %	-	+1.3	+8.7
Rail Share %	28.5	26.9	24.8
Rail Growth %	-	-4.6	+0.4

While rail freight volumes by market segment are not available from that period, there was a real decline in both revenue per unit of output *and* tonnes of freight carried indicating that the market pressure may well have been felt across all of Rail's market segments. During this period, PPI adjusted, cents/NTK declined by more than 11% per year and tonnage fell by 4% pa.

From 1983 to 1988 both the rail passenger and the SeaRail freight and passenger businesses grew by an average 4% in volume. Despite this real revenues fell, by an average 9% in rail passengers and were largely unchanging for the Searail business. Within these

results, the number of commercial vehicles on the ferries doubled over the period but in real terms revenues from that source declined as price pressure was felt here as well as in the rail freight business. This indicates that competition (sea and air) existed in this market as well.

Market Surveys

Market survey material from that time shows just how sensitive the market was to freight rates; with up to 75% of customers stating that they would move to other transport modes if rail rates were increased by up to 10%. Interpretation of these figures would no doubt be confounded by the incentives of the customers being surveyed. Despite this there was a strong perception conveyed by the market surveys that road was a better mode of transport with shorter transit times, better "service" (door to door etc) and a higher standard of care for the goods being carried.

Segmentation

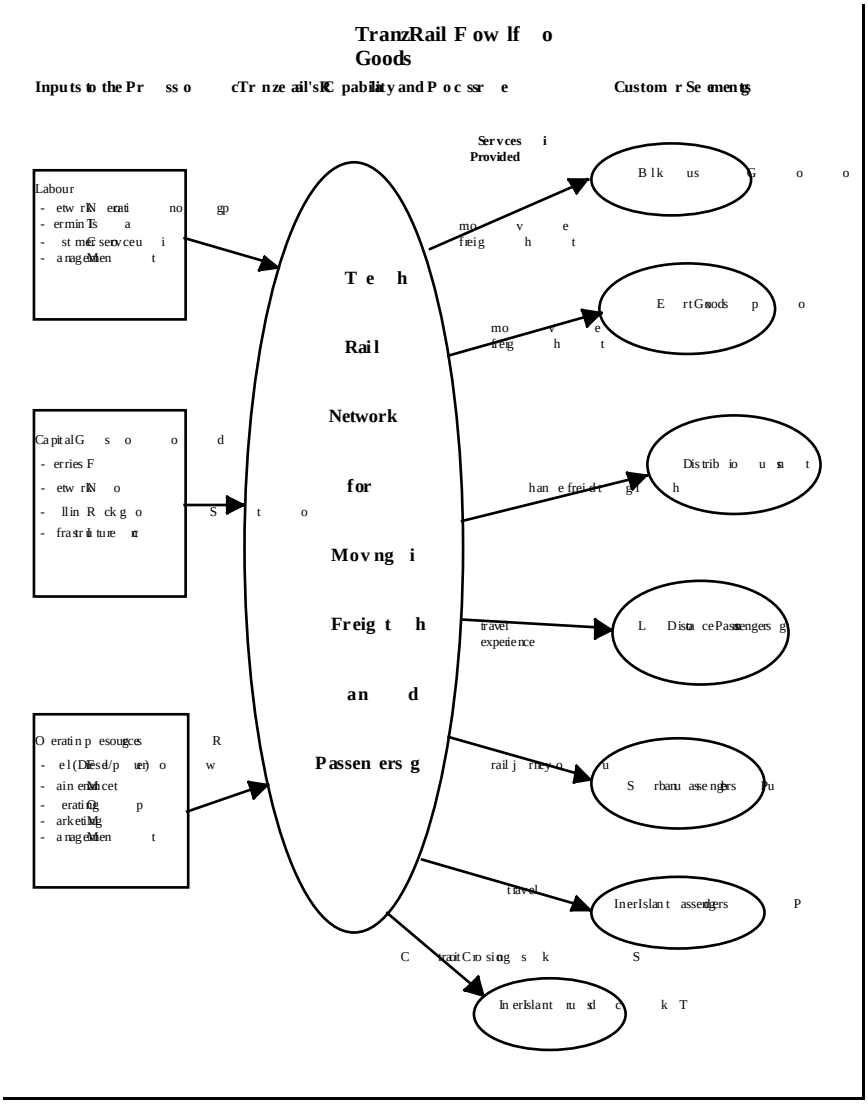
Despite the increased competitive pressure it was not until the latter part of the 1983 - 1988 period that Rail Corp started to take a segmented-marketing approach to freight customers, especially to determine what influenced customer decisions to use road, rail or sea for freight movements. Rail's targetting of customers via marketing units in the freight lines of business and by their newly formed corporate strategy unit was a significant step. As will be seen, it eventually led to the business units being both "commodity" and customer focussed and recognised that a small number of base customers dominated (and continue to do so to an even larger extent) rail's revenues.

Price changes were implemented in a targeted way within some of the segments where rail felt they were able to improve revenues but, while short term revenue improvements occurred, the changes were not sustainable and downwards pressure on volume and price continued.

The market segmentation analysis from here on is structured to provide a review of changes to market characteristics (train size, speed etc); that in turn gave rise to changes in market outcomes (overall volumes, shares and price levels). The market outcomes generate in turn a strategic response from rail, which is then reviewed along with rail's own outcomes (revenues, etc). The segmentation structure is demonstrated in the following flow of goods diagram.

This framework is appropriate for describing how inputs and outputs varied in both value and composition during the period but is most useful in describing how the market characteristics identified earlier come together as segments that can be measured for size and scope. Unfortunately rail did not see its markets in this way in 1983 and data are not available to describe the segments until 1988.

Flow of Goods and Segmentation Structure



For confidentiality reasons this diagram cannot show the actual data on the size and scope of each segment that has been used to compare and analyse segment performance over time.

Market Awareness

It is however quite clear that the analytical work done in the 1983/88 period was the beginning of rail management's understanding of the sensitivities of the sources of freight market share and financial performance. The overall market and financial information was assembled and analysed in an expanded corporate strategy unit where an awareness was growing of just how fragile the future of Rail Corporation was, given the way the market was emerging and Rail's deteriorating financial performance. (see section 4.2.4). Specific, market segment focussed processes were developed in the newly formed business units where the detailed business analysis was undertaken and the customer relationships were managed.

Costs 1983 - 1988

It was not until 1986, when BAH conducted an in-depth analysis of road transport economics, that rail had other than limited data available on the costs of the road transport sector that they competed with. Deregulation and various tariff changes provided for a continuous reduction to the real core costs of owning and running a truck while the (increasingly) variable nature of the costs of the truck business allowed firms to quickly adjust their cost structures to changes in both market conditions and to technology. Changes to the vehicle weight regulations, especially the increase in gross vehicle weight to 44 tonnes, facilitated the development of larger tonnage long haul trucks and trailers during this period.

The following table highlights the variable nature of truck costs vs. the high cost of wages that NZ rail suffered at that time. Truck operators, fuel, road user charges and drivers' wages were entirely influenced by distance travelled. Therefore truckers sought to make as much of their costs variable to distance while rail was saddled with more than half of their costs being fixed.

Costs as % of Revenue

Truck Costs				Rail Costs
Costs	1984	1985	1987	1988
Fuel	16.1	16.3	13.1	7.0
Road User Charges	8.4	10.9	11.2	0
Maintainence	15.7	15.0	14.1	8.0
Wages	25.8	23.7	31.5	56.0
Dep'n/Finance	13.0	10.4	15.6	8.0
Other	18.0	20.8	12.6	21.0
Total	97.00	97.10	98.10	100.00

Interestingly, from the limited data available, it seems that trucks did not suffer the same decline in revenue per unit of output during 1984 – 1988 and it was not until the late 1980's early 1990's that the real rate for trucks started to fall; whereas the real cents per NTK of output for rail did fall an average 6% pa during the 5 year period to 1988. Trucking was expanding both market size as well as its share and, based on the perception of better service it seems that customers were willing to pay a premium for road transport. It is also possible that the reductions in real freight rates were a reflection of reduced costs brought about by cheaper imported trucks.

Quality of Service

There is little evidence available to shed light as to whether or not rail had any understanding of the factors that influence customers' perceptions of their service quality. Limited survey work was done and this revealed that customers' service concerns were limited to price, knowing the location of their goods, and responsiveness. The issue of timing that was later revealed as important to all customers and critical to some was not especially visible at that time.

1989 to 1993 - Rail Restructuring

Two Factors

In this period two factors directly affected both Rail Corp's competitive position and their performance. One was the focussed marketing effort that led to segmentation of the freight market and which was substantially led by non-rail management people brought in for that reason. The other factor was the 1990 restructuring of the "core" rail business into NZ Rail Ltd. There is documented evidence that, from early in 1989, the Board had decided on a possible path to privatisation which would need market share stability and a competitive position for rail if the business was to be sustainable and the sale value maximised for the Government.

Despite the market changes in the 1980's that led to the growth in other categories of revenue, freight still accounted for more than 60% of Rail's revenue in 1989 and after the NZ Rail Ltd split in 1990, when property, buses and other non-core business revenues stayed with the old Rail Corp, freight made up more than 70% of NZ Rail revenue. That is still the case 8 years later.

Market Segmentation - Rail Freight

Regulation

By 1989 the direct regulation of road transport was all but complete however a number of environmental factors did have an on-going and significant impact on the freight movement business, more especially on road transport. Long distance road fees had been removed in 1988. Restructuring of truck, tyre and diesel tariffs had resulted in a lower cost of ownership ... estimates show capital prices were down 33%, diesel down 43% and operationally truck utilisation was up 14% (source: BAH 1989 competitive analysis). One of the direct results of this was the emergence of highly efficient truck operators especially on the Wellington - Auckland run. Interestingly, Rail were advised by BAH that, given the last of the structural changes, market equilibrium would be reached by 1991 and both market share losses and freight rates would stabilise quite quickly at about the same time. Quite clearly this did not turn out to be the case.

Tonnage Mix

In a substantial portion of their market, Rail should have an advantage over trucks, particularly where the need is to move large loads of basic commodities over longer distances and handling is minimal. Its advantage of moving large loads over longer distances with little handling in between is a characteristic of the rail freight business and is captured in the market structure and segmentation analysis described earlier. That is what railways have traditionally been meant to be good at.

The mix of tonnage types is a good indicator of whether rail has a strong focus on those segments where they have this advantage as opposed to diversifying by moving other types of freight. Analysis shows that, over this period, their mix of goods moved is increasingly dominated by bulk goods; coal, forestry goods and minerals. Overall their tonnage was stable at about 8.5m tonnes

during the period, though the volume of both export and distribution goods declined by more than 10%.

Length of Haul

Another indicator of change in the basic market structure is the distance over which the goods are hauled. Although it is partly a function of the tonnage mix, it may also reflect the traditional economic advantage rail has in being able to move larger loads over longer distances that is highlighted in the segmentation. The Bulk Goods segment, made up of Bulk Freight and Forestry was stable at a little under 300km per haul, the Cargo Flow export business fell a little to about 300km and the Distribution business which is substantially door to door freight increased haul distance to more than 600km. Quite clearly the movement of bulk goods from source to sink is a different business than distribution where most goods movements are between main centres and may involve a Cook Strait crossing.

Train Size & Speed

Two factors useful in understanding the "load size" aspect of the market as well as the productivity of rail are train size and speed. If rail is moving more bulk goods in a world of declining real unit revenues it needs increasingly efficient ways of doing that to stay in business. Bigger, faster trains are one simple way of achieving this and rail seems to have moved quite quickly to capture gains from faster train speeds.

Although net train size had been increasing slowly from approximately 260 tonnes in 1980 it does not seem to have contributed to a significant change to the shape of the freight market in the 1989/93 period. Of more importance is the steady and significant increase that is seen with freight train speeds. Stimulated by the growing market need for timeliness and efficiency, Rail Corp. used a combination of technology changes (changing 4 wheel wagons for bogie wheels) infrastructure developments (welded rails and more passing bays), to push speeds up and improve train utilisation. (See section 4.2.3 for a detailed analysis of investment in performance)

Costs

Incremental or directly avoidable costs by segment, split out by train running, terminal and replacement capital costs will also have an important influence on how rail is able to compete in various segments. Each segment requires rail to focus on different costs, for example while it appears that train running costs were reduced through operational efficiencies such as faster bigger trains, over this period terminal costs (handling costs that are labour intensive) also seemed to be reduced through both operational processes and investment in lower cost facilities. These improvements appear as increased capital replacement costs, but should lower overall incremental costs. Overall Rail Corp. invested successfully in both operational and capital improvements.

Train running and terminal costs both fell overall but investments particularly in improved wagons led to an increase in the capital cost element.

Service Quality

During this period Rail introduced the TQM approach to the management of service quality. The emphasis was on gaining acceptance of TQM as a company wide philosophy and senior managers were "trained" in the approach. TQM fitted with their marketing strategy of customer focussed management and reinforced their awareness of service as an important factor in customers' decisions to use rail. They collected a limited range of specific quality measures designed to allow service performance to be managed.

Service quality measures for freight were quite limited, with data on derailments, temporary speed restrictions and timeliness of priority freight as the only quantitative evidence of attention to service performance.

A range of data on the timeliness of passenger service was collected during this period though the data are not complete and therefore are of limited use.

Rail Corporation - Strategic Market Segmentation

1988 Reorganisation

As was seen in section 4.2.1, late in 1988 Rail Corp had been internally reorganised into market specific business groups (primarily Railfreight, Passenger and InterIsland) with the substantial Railfreight group further segmented into market segment business areas and a freight operations group that ran the network. This management structure allowed the freight group to focus on both the commodities carried and customers served by each segment.

Marketing analysis conducted in 1989 showed that Tranz Rail's share of the market was dominated by the transport of a very small number of commodities for a small number of customers. They were squeezed between the power of their customers and the threat of road and coastal shipping transport as substitutes in the areas where they could be expected to look for improvements in market share. In 1989 it was estimated that 200 customers produced 90% of their revenue (this concentration had narrowed to 47% from 10 customers in 1995), and it was this understanding that Rail Corp. needed to be customer centric, seems to have brought their marketing strategy into sharper focus from that time.

Account Strategy

It was in response to this knowledge that Rail Corp., late in 1989, developed and implemented a targeted customer strategy. Their strategic approach here was more to reduce ongoing market risk and improve both net revenues and volume growth, than to continue to directly cut costs further. This is a very important change in focus because up to this time they had mostly concentrated on making the company productive and cost efficient.

Their customer strategy had a number of complementary tactics. These are described in what follows.

Pricing Strategy

In 1989 Tranz Rail also introduced a structured pricing strategy using a two tiered approach to pricing whereby the competitive environment sets the base price and "linkage" to NZR sets the ability to charge a premium. They saw targeted price increases as valid revenue opportunities and increased prices twice in 1989; 5% early in the year and a further 6.5% later on. They clearly felt that, assuming stability was around the corner, and that they needed to take charge of their competitive future to meet their medium term privatisation objectives. These price changes were inappropriate for the market conditions.

Yield Management

After the restructuring in 1990 that established NZ Rail Ltd., an innovative revenue yield management programme was developed to maximise revenues of containerised traffic. This seems to be the beginnings of rail's targeted competitive approach and this particular innovation has developed into their current Distribution line of business that has been able to compete and grow and charge a premium rate over straight container loads. This service offering has a set of characteristics, including part load handling, secure transport and storage that provide distribution customers with a quality that alternatives do not provide.

Market Outcomes

Market Size

Overall the total freight market size did not grow significantly until 1992 when an estimated 9.5% annual growth was recorded, signalling the end of the recession that New Zealand had experienced for 4 years. Again market size has been estimated using data on road user charges, and shows the following market dimensions for the period to 1993. Of importance here is the strong growth in the overall market NTK's late in the period against declining or small growth in Rail NTK's.

While the NTK estimation technique is not accurate enough to be totally confident of the absolute value of the growth rates, the trend of overall flat rail growth against a positive market growth highlights rail's relative decline in this period.

	1989	1990	1991	1992	1993
Market Size (m NTK)	11,900	12,350	12,300	13,500	15,800
Growth %	+1.7	+3.2	-0.1	+9.5	+17.1
Rail Share %	22.1	22.2	19.2	18.3	15.8
Rail Growth %	-9.7	+3.9	-13.8	+4.7	+1.0

Market Share

Prior to 1990, two different estimation methods for market share had been used by Rail to assess their market position. As before

they had used Statistics New Zealand's AES data, which indicates that rail's share had stabilised at a low of 15% by 1990 when that data series was assessed as unsuitable for estimating market share and was no longer used. To improve their estimates Rail implemented a new approach in 1990 that used a model of inter-regional freight movements. Estimates from this method show a 1990 market share of 19% compared to 15% from the AES data, and only small declines through to 1992 when the last of these new estimates was completed. Neither of these methods are comparable over a long enough period of time to be that informative, nor do they show what is felt to be the real trend, an ongoing decline in rail's share.

ISCR Method

The ISCR method of estimating market share that is described on page 30, uses data to estimate market share, i.e.; an analysis of road user statistics and truck utilisation data from RTA surveys, it is believed that rail's share of the NTK's of the freight market has declined steadily since the late 1980's and is in fact much lower than was previously thought. The decline is particularly apparent when viewing the strong growth in road NTK's, up an average 8.7% pa 1989 through to 1993, while rail freight NTK's declined by 3% pa in the same period. While this is valuable trend information it should be used with caution for an analysis of levels. Unfortunately the lack of a common unit of output and data availability makes more certain market share estimates quite difficult.

From this and other data it seems that the nature of truck competition did not change. Truck industry surveys indicate that the real revenue per unit of output was stable for much of the period but as already noted, capacity grew very strongly towards the end of this period, as did utilisation of the truck fleet. It seems that road could offer a more attractive service, based on a competitive price and therefore the market growth simply went to road and, quite simply, rail's overall market share fell as a result.

Freight Volumes

Rail's own rail freight volumes, both tonnages and NTK's were flat, but this disguises some interesting changes within the individual market segments Analysis of rail's NTK's (these capture both distance and load) show that the bulk goods commodities, coal for instance, increased a little while volumes of export goods fell by a small amount. In contrast to these changes, the output of distribution goods fell through to 1991 after which a strong growth in NTK's can be seen. The economy was not strong for most of the period, it was in recession until June 1992 but started on a strong growth cycle from late in 1992. While any direct link between rail's performance and the New Zealand domestic economy would be weak in the bulk and export transport segments, the movement of distribution goods could well be affected by the macro economy and this would therefore flow on to Rail's freight business. This latter point is reinforced by the fact that during this period truck capacity, represented by road user charges, changed little but, as mentioned above, it grew strongly from 1992. The link between rail's performance and international business cycles may

not be weak in that certain bulk commodities are very susceptible to the price and quantity change in international markets.

Unit revenue

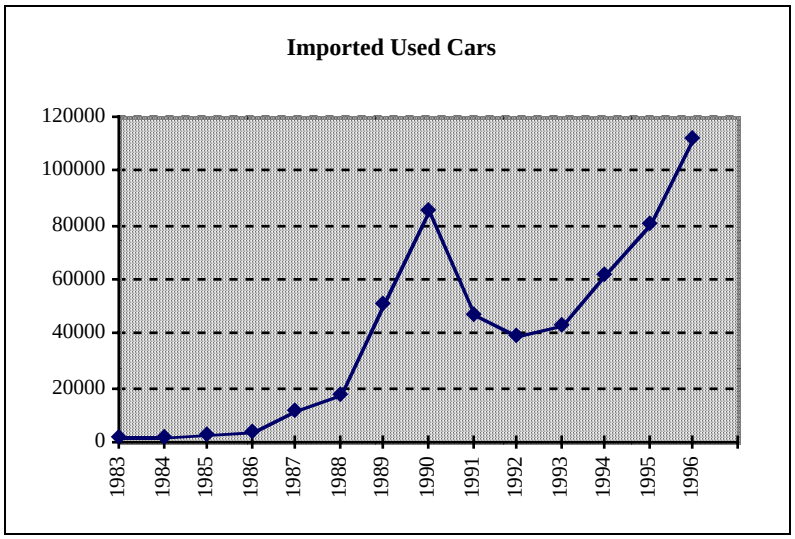
Unit revenues (in cents per NTK) for each segment is a more informative performance indicator than simple revenues. Both the bulk goods and export segments for instance had unchanging to increasing volumes but declines in c/NTK which suggests that real price reductions were necessary to maintain volume. The only segment to show growth in unit revenues of any magnitude was distribution goods, which later became Tranz Rail's Distribution business. Here rail managed to increase the real unit value of the business with unchanging volumes. Three factors contributed to growth in this sector; firstly the service value to the customer improved through rail including door-to-door capability, secondly warehousing services were provided and thirdly a high value long haul refrigeration capability was added during this period. Also of note within the distribution segment is the decline in output volume and value of the freight forwarding business, remember that this is the long haul component of the freight fowarding market that is dominated by trucks.

Passenger Market

The involvement of New Zealand Rail in the business of moving passengers in the period 1989 to 1993 changed dramatically. Firstly, a substantial portion of Rail Corp's Passenger Group business was either left with Rail Corporation in 1990 as a result of the NZ Rail Ltd. restructuring, or it was sold to private ownership (e.g.: buses). These decisions were implemented as a result of various strategic reviews and of the deteriorating market position of their rail passenger business.

During the 1980's the number of passengers that Rail Corp moved, both long distance and short, had remained fairly stable. Suburban rail passengers peaked at nearly 16 million in 1986 while long distance demand was stable between 800 and 900,000 pa. By 1993 however, suburban passenger numbers had declined to just 10 million and long distance passenger numbers had more than halved to less than 400,000.

The increase in the number of second hand cars imported during this period likely contributed to this decline, the following data on used car imports shows a sharp increase that coincides with the decline in rail passengers.



source: Statistics NZ Yearbook 1987.

InterIslander

Despite these rail passenger numbers, numbers on the InterIslander increased by nearly 40% throughout 1988-93, to more than 900,000 in 1993. This result was particularly notable as it was achieved during a period of recession in the economy and after a period of low growth in InterIslander demand during the mid to late 80's. In tandem with the growth in passengers, Rail's InterIsland commercial vehicle traffic grew more than 30% in this period alongside a growth in their own freight tonnage of less than 10%. The growth in commercial freight volumes coincides with the strong growth in road transport capacity, totalling 40% over the 5 years that occurred towards the end of the period 1988-93. In real terms 'external' revenues on the InterIslander were unchanging, however as a result of the 1990 structural change, a change was made to InterIslander performance reporting and it has not been possible to recreate a Rail Corp to NZ Rail Ltd. comparison of commercial and freight business.

Prices for all InterIslander services fell in real terms, suggesting that there has been some pressure from alternative modes of transport.

1994 to 1997 - Post Privatisation

This period was notable for 2 events; market share stopped falling for the first time in 10 years and in real terms revenue grew, again for the first time in 10 years.

Market Segmentation - Rail Freight

Regulation ended

The deregulation of the freight business was well concluded by the time NZ Rail Ltd. was sold in 1994. Road User charges that had been implemented in 1984, and had remained unchanged, were revised in 1996 into a 2-tier price structure that was targeted at being revenue neutral. There were no impediments to competition.

Tonnage Mix

The tonnage mix in this period reflects Tranz Rail's strategy targeted at both yield management and operational efficiencies through economies of scale. The mix is now increasingly dominated by larger tonnages of bulk goods driven by growth in that segment.

Average Haul

Average haul is stable, with both bulk and export goods averaging about 300km. The average haul of goods in the distribution area showed a decline, in contrast to the small rise seen prior to privatisation.

Train Size & Speed

Train size and speed are also interesting to compare with the previous period. Whereas train speed increased significantly (+20%) in the period to 1993, it has not gone up much since then. It is probably not possible to improve speed further without significant investment. Train size has continued the 1989/93 trend and increased a little following privatisation, as Tranz Rail fine tunes yield management aimed at improving net revenues from market segments. However, net train size has been reasonably stable for the last 3 years.

Costs

Costs for train running continue to fall with significant reductions apparent in the bulk and export goods segments. Terminal and capital replacement costs for distribution goods have increased as market needs dictate. Terminal costs for bulk goods have been reduced significantly.

Service Quality

In 1996 Tranz Rail implemented a programme of measuring and managing a range of operational indicators that have been identified as important to service quality. Time series data are not available for the whole set of indicators, but the range of available measures includes;

- Derailments
- Average time delay per train
- InterIslander delays - arrival and departures
- Wagon Utilisation
- Claims against Rail

Time series data are available for a continuation of the indicators previously identified;

	target	'92	'93	'94	'95	'96	'97
Passenger Service Performance - Timekeeping							
TranzScenic							
% on time	70	52	53	52	39	41	56
% within 10 mins	95	75	73	69	60	72	80
InterIslander							
Arrivals within 5 mins			68	100	61	70	
Freight Service Performance							
Mainline Derailments	62	48	63	78	53	71	
Speed delay-mins 10100			13870	12246	46542	20347	

These data are variable and they are not informative of the characteristics that matter directly to the customer. For instance they do not indicate the extent to which Tranz Rail's specification of being within +/- 15 minutes of the planned delivery time for priority distribution freight is met.

Stability

Overall it seems the period was one of stability compared to the market upheaval of previous periods; with markets steadily getting more competitive at the fringes. It seems that Tranz Rail have found their areas (market segments) of competitive advantage and are managing them very efficiently. The only issue is that of longer-term sustainability as unit revenues decline and margins are eroded as more of their costs become fixed. Customers have continued to place pressure on Rail for price/quality trade-offs and the competition inside the distribution business and outside their other nominated segments is quite intense.

Tranz Rail Strategic Approach

Focus

Overall the focus of the new owners has been on yield management; that is, optimising the price/volume mix in the market place as well as implementing refinements in the operations of the railway to improve productivity and customer service.

Its 1995 prospectus states that its perception that it is moving from being a key provider of low cost line haul to a provider of integrated transport services. Its well-defined marketing strategy has been targeted at keeping the freight revenues growing by managing the price element of the marketing mix and lifting the level of service it offers to its customers. It sees long term growth in the freighting of bulk commodities such as coal and forestry and, in the immediate future, in the distribution of goods that have traditionally been handled by trucks. It sees its competitive advantages in this segment as its ability to move larger volumes over longer distances in conjunction with efficient door-to-door service that distribution customers require. Tranz Rail has invested in trucking capability to meet these requirements and since 1992 has (part and then fully) owned its own refrigerated truck business for that specialised segment. By the date of privatisation most of the heavy investment restructuring had been completed, and Tranz Rail has concentrated on fine tuning their service operations since then.

Freight Customers

The specialised marketing tactics that are needed to compete in each segment have resulted in Tranz Rail preserving and tightening its focus on the same market segmentation as existed before this period. It has further developed the business units especially for this purpose. Obviously, BulkFlow customers, for example: Coal Corp, require a different approach than customers of the Distribution business. The marketing tactics employed so far appear to have been very successful, especially in expanding

volumes of bulk commodities, but also in continuing the important revenue growth trend that developed from their Distribution segment.

Passengers

Passenger segments are a little different. Commuter services in Auckland and Wellington are undertaken with subsidy payments from the local bodies in those areas, while marketing of long distance services are route based and are targeted at tourists. The long distance business is not subsidised and is marketed on the basis of the travel experience it provides. Some passenger services are still viewed by Tranz Rail as marginal business. To survive they are required to contribute to the fixed costs of running the network. Presumably, this applies to all market segments.

InterIslander

The InterIsland ferries provide both an essential part of the rail network connecting the North and South Island as well as separate services to commercial freight customers and to passengers. Tranz Rail has faced various competitors to their InterIsland service, however those that have managed to survive more than a short time have proved to have an insignificant impact on market share. It is noteworthy that real prices of InterIsland services have continued to decline.

Market Outcomes

Market Size

The freight market grew significantly in the period following privatisation. Much of the expansion was due to the increase in aggregate real economic growth of 6.2%, 5.3% and 3.1% in 1994, '95 and '96 respectively. As before, market size (road and rail NTK's only) has been estimated using data on road user charges, and shows the following market dimensions for the period to 1997;

	1994	**1995**	**1996**	**1997**
Market Size (m NTK)	20,7000	22,200	23,500	24,500
Growth %	+31.1	+7.3	+5.6	+4.5
Rail Share %	13.7	14.4	13.9	14.3
Rail Growth %	+13.4	+12.9	+1.8	+7.5

Growth in overall market size has slowed from the high levels that occurred just prior to privatisation, but importantly rail have managed to maintain their share and in fact expanded their NTK's at a higher than market rate for 2 of the 4 years since privatisation.

Market Share

Market share estimates, using the ISCR approach described earlier, indicate a significant change in the trend of falling share that rail had experienced for 9 years. While the ISCR approach is clearly not accurate enough for other uses, it is, as previously discussed, an adequate indicator of broad trends. Market share analysis shows that the market share loss observed in other estimation approaches for the period 1989 to 1993 is replicated using this method, and

that, from 1994 to 1997, the decline slowed considerably, despite the strong growth in trucking's share of the NTK's that started in 1992. This indicates success in rail's product marketing tactics as well as for the growth in output volumes of commodities in rail's core market segments.

Output Volumes

Tranz Rail continued to transform its Fowarding business (as in the pre-privatisation period) to Distribution where it was of greater value to its customers. This change was at some cost to rail, as volumes went up, real unit revenues fell. Their major lines of Bulk Goods suffered the largest price declines, falling an average 7% pa over the 1994 to 97 period but had volume growth of 5.5% pa as a result. Other than the price and small volume growth in the Distribution segment, the most significant changes took place in the Export goods segment where price fell by 4.4% but volume growth was nearly 12% on average. These results all indicate how price sensitive Tranz Rail's market segments are.

Overall

Overall, the long term decline that rail had experienced in both freight volumes and market share ceased and from 1994 sustainable growth was recorded. By comparison, capacity in the road transport business (data sourced from road user charges) grew strongly to 1994 but growth has slowed from that time. The analysis also recorded a trend to smaller capacity trucks with road user km's purchased showing a decline in all weight categories above 5 tonnes. This possibly resulted from Tranz Rail's success in the long haul of bulk goods.

Unit Revenues

Until 1994 the long term trend in real output prices had been in sympathy with the decline in output volumes, they both fell, but unlike the growth in volume since then, unit revenues have continued to fall albeit at a slower rate.

Within this overall downward trend in prices, output value in cents/NTK fell significantly in both the Bulk and Export segments over the post privatisation period and, as noted, increased in the Distribution segment, continuing the trend of the pre-privatisation period. Clearly customers are placing an increasing value on rail's capability in this area. The emphasis has continued to be on enhancing the mix of factors that make up their distribution offering, timeliness, storage and handling especially.

Passenger Market

Tranz Rail Strategic View

Some passenger services are marginal and if passengers cannot pay their avoidable costs and make a contribution to common costs then they will not continue with that particular passenger service. The same argument applies to other activities, including passengers on the Cook Strait ferries. In this case Tranz Rail maintain that freight and commercial vehicles would still provide them with a viable business to fund the ferries that did not carry passengers, although there are some economies of scope. Passenger services are all

viewed as standalone businesses and are managed and marketed as such.

TranzScenic

Marketing rails' long distance passengers services was implemented via the 1995 rebranding of long distance services which created a number of individual "named" long distance journeys targeted at tourists who seek a particular train trip experience. In the same fashion as freight the strategy here was to maximise yield by getting the price/service mix right, adjusting prices upwards whenever possible. Price increases were implemented in 1995 and twice in 1996. Passenger numbers increased in both 1996 and 1997 after a small decline in 1994.

As a result of this strategy both revenues and passenger numbers have grown strongly since privatisation. This indicates that Tranz Rail have targeted "experience" travel, because real airfares and costs of car transport between main centres have declined over the period.

TranzMetro

In line with this strategy, from 1990 suburban passenger journeys, branded as TranzMetro, are confined to Auckland and Wellington and as long as contracts and financial support from the local regional councils are available, rail will continue to provide the service. Passenger journeys are increasing again but are not anywhere near the levels of the early 1980's, with the market growth limited by the strong competition from the transport of people by road.

InterIslander

Compared to rail passenger performance, InterIslander passenger business is a real success story. Passenger numbers increased from 966,000 in 1994 to 1,085,000 in 1997 while revenues show particularly strong growth from 1995. In the summer of 1994/95 Tranz Rail introduced a fast ferry service across Cook Strait to cater for passengers that want a shorter travel time and who are prepared to pay a price premium for it. For part of that summer season and the following summer two operators competed with Tranz Rail in the fast ferry portion of the InterIsland business but both failed to survive. Competition for passenger non-vehicle transport exists from Plimmerton.

The aging of the existing conventional ferries and the on-going success of the InterIslander service has encouraged them to invest in a new roll-on roll-off ferry and to seriously consider keeping the fast ferry on for future summer seasons. The fast ferry service breaks even as a standalone business and is therefore of value to Tranz Rail. Analysis of the fast ferry financial performance has revealed that Tranz Rail do not cross subsidise this service.

The price of standard commercial vehicle and passenger transport on Cook Strait services declined in real terms over the period 1987 - 1997, some by as much as 3% per annum. The introduction of a new product - the fast ferry - resulted in measured non-quality-adjusted increase. However, this did not eliminate the decline in real prices over all.

Overall: the Market

In Summary

Competition in the product markets was pivotal to the fortunes of Rail Corp. through the 1980's as they struggled to get to grips with what competition meant to a railway. Unfortunately it took too long to work those issues out and when in 1990 rail did eventually devise a marketing strategy to establish and maintain its market position it was in a very weak structural and financial state.

This aspect of the analysis is picked up later where the financial consequences of the market evolution are reviewed, and the financial and organisational restructure is described.

From this analysis a number of issues emerge;

The market

The market for long haul freight went through a long adjustment stage that resulted in rail emphasising its competitive advantage in the movement of bulk goods over long distances. Structurally the overall market seems to have changed little but its value increased 20% in real terms over the 1986 - 97 period. While the market has grown Tranz Rail's share on the other hand has fallen by nearly 40%, with much of the loss occurring in the period prior to 1990. Market volumes have more than doubled in the period 1986-97 as prices fell.

Marketing Strategy

Once rail had adjusted to the turmoil of the 1980's it devised a marketing strategy that, combined with good operational management and targeted investments, has allowed them to stem the market losses and actually grow the business. This was implemented not coincidentally, at the time that privatisation decisions had been reached. This will be discussed subsequently.

Service Quality

It seems that more attention could be paid to the assessment of service quality, particularly that which relates directly to customers. The random results of the limited range of indicators are not sharply focussed on customers. It was not until 1996 that management sought systematic evidence of both these and other indicators.

Passengers

The rail passenger business shrank as a consequence of withdrawal of central government subsidies, and lower car costs, partly resulting from the importation of used cars. Again it was not until a strategic approach was taken to managing the business that it showed any signs of being successful. Contracts with local councils in Auckland and Wellington, to support local passenger services, have been key to successful provision of these services. A particular marketing strategy was applied to long distance services to make them successful. Both services make a positive financial contribution to Rail's fixed costs.

InterIslander

The movement of passengers and freight across Cook Strait has been financially successful. Innovations, such as the fast ferry have survived entrants to the passenger business and despite small competitors moving freight, Rail have been very successful in

expanding all aspects of that business. Real prices for these services have declined and hence potential and actual competition seem to be constraining prices in this market segment

Market deregulation and the competitive evolution was a major contribution to the changes observed.

Labour and Technology

8 Labour and Technology

Key Elements

The importance of labour and technology to the success of the rail business should not be underestimated. Labour productivity and asset efficiency determine rail's cost structure which is the basis of success in a competitive market. To be a successful carrier of long haul - bulk commodities simply requires being the cheapest because customers are primarily seeking low cost service. As observed in the review of rail's marketing effort it is possible to gain incremental value from doing something differently (their distribution business brought together a mix of service features that have led to expansion in the size and value of that segment), but at this time rail do not have a core advantage in distribution and logistics, it does in bulk haul commodities over longer distances.

Redundancies

After deregulation in 1983 and before March 1985 rail reduced staff numbers only by voluntary means, in accordance with a political directive.

The financial situation of the company in 1986 necessitated more rapid productivity gains. The recovery plan outlined in the Strategic Plan of that year concentrated on reducing staff more quickly by closing facilities such as workshops and warehouses as well as introducing more effective work processes and methods. Before 1986 Rail management and the owners had employed a strategy of allowing staff to take voluntary severance but when that did not provide a fast enough reduction in costs, a more forceful approach was taken. The introduction of new technology was critical in allowing this to happen and a series of projects were introduced to increase productivity. The investment initiatives are reviewed in the next section.

Seagoing

Reducing the costs of seagoing personnel appears to have taken longer than similar initiatives in other areas of the business. In the early stage of rail's restructuring, the employment conditions for its InterIsland operation's (Searail) seagoing staff were complex: they were contained in four service organisations and five industrial documents. Two other documents, to which Searail was not a party, also had a bearing on these principal documents. In this environment, the industrial relations function of Searail was seen as key. In reviewing the functions, structure and numbers of staff in 1987, Searail was keen to "adopt a pro-active positive, modern and imaginative approach to industrial staff/relations to create a solid, loyal, co-operative team …"

By 1989, however, it was noted that there was low morale among large sectors of the staff as a result of restructuring, even though the relationship with the Maritime Union was reported to be "stable" and there were low levels of industrial dispute within all parts of the Company. Two years later, negotiations with the Maritime Union to reduce crew numbers and eliminate restrictive practices and expensive conditions of employment (for example,

leave ratios, extra sailing payments, and shore-based accommodation) were again reported. While the process was expected to be lengthy, the unions were "willing to concede on costly and inequitable conditions of employment".

But high personnel costs and rigid operating regimes contained in the maritime collective agreement in 1994 were stated to be the most important issue for interisland operations at this time. Negotiations concluded in mid-1994 were expected to reduce personnel expenditure by 28%. This was on top of substantial cost reductions which had been achieved through shore-based restructuring in early 1993/94.

Work practices and methods

Innovations

A series of technological innovations, along with industrial agreement to implement them, allowed the introduction of more efficient work practices. For example, radio technology has had a significant impact on the company and the way in which it operates its rail network in the following areas:

- *Alternative train crewing:* In 1988 an industrial agreement had been reached to implement single person crewing on rail and by 1991 it was substantially complete. This was achieved with the assistance of computer-aided radio communication which allowed communications between train control and the locomotive engineer. It was then no longer necessary to have a second crew member on board for safety reasons.

- *Track Warrant Control:* Track Warrant Control uses radio technology to provide a simple method of track clearance for trains. Centralised traffic control had been used on heavily used routes, but simpler forms of signalling and control had been retained on less used provincial lines. These latter forms of signalling were labour intensive and expensive to operate and maintain. In some instances required staff based at regular intervals along the route and around the clock.

- *Shunting:* Shunting had traditionally been controlled using hand signals during the day and hand lamps at night. In addition to the restrictive visibility requirement, this system was hampered by the numbers in the work teams involved. Radio communications has allowed considerably fewer people and lower costs. Recently the Corporation has been investigating the use of remote controlled locomotives for shunting.

Fewer Staff

Restructuring within the organisation and rationalising operations also led to changes in work methods and a reduced need for staff. For example, when the Corporation was restructured into three business groups in 1987, they were to provide their own support services, reducing the Corporate group from 800 to 60. There

were also staff reductions in workshops due to the lighter maintenance workload as a result of a smaller wagon fleet (see the section below); re-organisation and reduction in track and work-gang strengths; the closure of District Offices and rationalisation of Area Construction Managers' offices; and freight terminal consolidation. Multi-skilling has been a more recent introduction under a company and trade union agreement to bring increasing flexibility in work methods. It was introduced into freight yards by 1991 and has since been extended into workshops and depots as well.

Contracting Out

The contracting-out of services has been another method the corporation has used to reduce fixed costs and establish a greater dependence of operating costs on volume. It began early in the restructuring process (before 1988 this was mainly in the area of building and bridge construction), at which time there was some resistance from unions. In addition to increasing the volume variability of costs, there were other benefits seen to be gained from contracting out services:

- quality assurance standards, including benchmarking opportunities
- penalty payments for non-performance
- the creation of a competitive supply situation.

In 1991, the Boston Consulting Group estimated that the Corporation could save approximately $20-30 million annually by contracting out those services that were not strategically important to control in-house, for example yard operations, freight services and crewing.

Improving work practices by using technology has remained an on-going focus for the company in seeking productivity gains. Recently the company has invested in Ontrac for freight management using barcode technology. The system tracks freight items themselves, rather than tracking associated documentation. An extension of the system, Ontrac Direct allows customers to track the process of their freight in close to real time using the Internet. The system produces electronic versions of waybills and consignment notes.

Rationalisation of wagon fleet

Objectives

Changes in the wagon fleet and the basic hardware of the freight business, have been substantial and on-going. The key principles have been to:

- replace the traditional four wheel wagons with the faster, more efficient eight-wheel bogie wagons,
- improve the load-to-tare ratio,
- allow more payload per tonne of wagon,
- develop wagon types that are more suited to meeting the needs of customers.

The aim had been to enable the Corporation to compete more effectively with road carriers in terms of both cost efficiency and customer service.

In 1988 the Corporation began the introduction of new high volume aluminium bulk wagons which were used principally for coal haulage, but which also opened up market segments in other bulk products where rail had been previously uncompetitive. Only 42 of the new wagons were required to replace approximately 600 of the old ones, resulting in lower maintenance and operating expenses. The following year the Corporation began plans to introduce the Roadrailer, a wagon used for freight distribution which can transfer from road to rail, eliminating double-handling.

SwapBodies

The development of new wagon types continued, and by 1991, the wagon fleet consisted of several types of wagons which could be configured to meet the specific needs of individual customers. These included the wagons mentioned above, Swap Bodies (where a larger container-type unit can be placed on top of a flat-bed wagon), canopy wagons designed for ease of loading and unloading, car-carrying wagons, wagons with extended cradles for carrying forest products, and a growing variety of containers such as curtain sided containers and containers with extra height and weather protection for coal. These all added to the service capability provided and represent an aspect of service quality that customers were prepared to pay a premium for.

The dramatic change in the make-up of the wagon fleet has improved asset utilisation as well as quality. It has reduced costs and placed the company in a better position to meet customer needs.

Investment in infrastructure

Some of the innovations in wagon development have allowed the company to take advantage of track improvements which enable heavier axle loads, improved clearances and the faster train speeds noted earlier. Investment in an on-going programme of welded joint elimination that created continuous lines throughout the network. It enhanced the utility of the North Island Main Trunk Line electrification that had been completed by 1989.

Information technology

The Information Services division of Railfreight Systems detailed an extensive review of the business systems requirements for the organisation in its 1988-1990 Business Plan. The emphasis was on an integrated approach to planning and clarifying priorities for the Group overall with the ultimate aim of enhancing the ability of the company to work effectively as a single business entity. A range of requirements was identified for each group within

Railfreight, but a common focus was a perceived need for improved decision support and productivity gains.

The rationales for the introduction of systems in each area were as follows.

Management	Improved managerial effectiveness with reduced clerical support. Managers were provided with computer terminals to allow access to data and decision making tools.
Customer interface	Productivity and service quality. The plan noted that "information technology is hardly used in the customer interface activities of the group at present [1988]; and yet it is in this area of the business that the strategic use of information technology holds out the greatest opportunity to make big gains in productivity, service quality and competitive advantage."
Operations	Optimisation of the process under which train timetables and crew and locomotive rosters are developed from workload projections. This crucial process determines the fixed labour and capital resources of the rail transport operation and largely determines the cost levels of the Group's rail operations.
Engineering	Increased decision support through accurate databases with simple data retrieval.
Searail	Increased productivity and customer satisfaction via passenger and motor vehicle reservation system.
Accounting	Ensuring that the costs consequences of managers' decisions were clear to them. Reduction of the clerical cost of the accounting system.
Human resources	Improved productivity in clerical and administrative procedures for the payroll system. Also, computerised training for large scale retraining in new skills (especially business skills and new business

A series of projects was implemented in a sequence which allowed the benefits from less complex projects to be gained quickly. The first was the Marketing Information System (accounting, marketing and asset database) and systems for transit control and yard and train operations followed.

AMICUS

In 1990 a computerised ticket system was introduced and the first stage of a major project AMICUS was completed. This project, implemented in two parts, has provided an integrated marketing and operations system. AMICUS 1 is a computerised record, pricing and invoicing system for freight. It is designed to reduce costs and increase customer service. It provides sales planning, equipment ordering, automated waybilling and a variety of market-related activities.

The following year saw the beginning of development work for AMICUS 2 which was operational by December 1992. It automated recording of train and wagon movements, assisted with planning for train and ferry services, and permitted immediate wagon location, ordering and distribution. As a part of the system, automatic vehicle identification was introduced which identifies locomotives, wagons and containers as they pass checkpoints by reading identification tags. Wheel sensors provide information on train direction, speed and the specific wagons being carried and some also record the weight of each wagon.

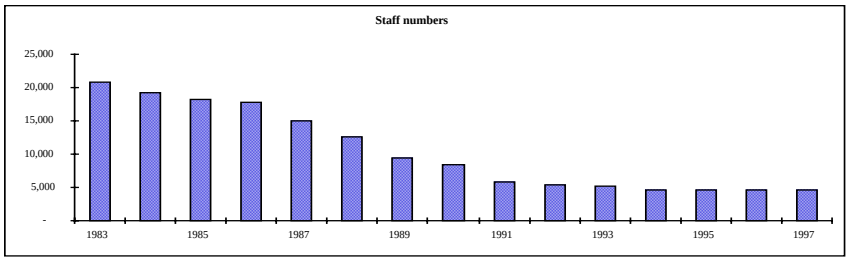
The corporation sees its ability to quickly unite information technology and the physical elements of the business as the means to gaining a competitive advantage. A recent example is the 24-hour customer service centre which is being integrated with a new equipment management centre and the network control centre.

The aim is to ensure that equipment availability and systems management are integrated with customer needs.

Results of these Initiatives

Staff numbers

The staff reduction programmes resulted in a dramatic decrease in numbers between 1983 and 1991, with numbers since levelling off.



As discussed in the previous section, the company hoped to reduce staff by means of attrition after corporatisation in 1983, but its severe financial position by 1986 forced it to do this by means of involuntary redundancies. In the longer term this saved a substantial level of cost, but one-off redundancy payments were a major cost to the organisation. In 1997-dollar terms, the company made a total of $438million in staff severance payments between 1987 and 1993. It announced a further redundancy plan in the 1997 Annual Report with a provision of $12 million over the next three years.

Redundancy Expenses

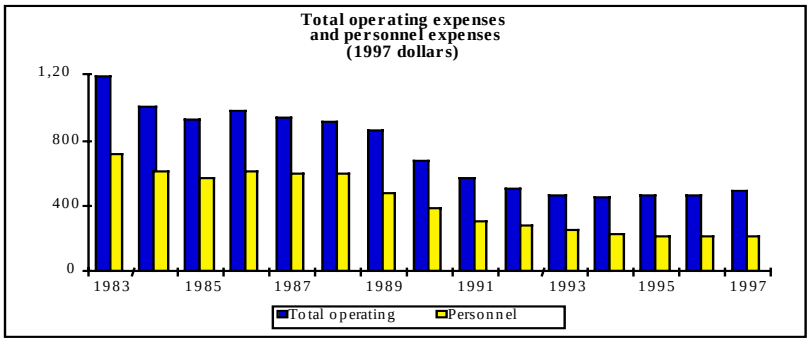
	1987	1988	1989	1990	1991	1992	1993
$m Spent	40.8	56.8	90.4	47.9	48.4	39.3	13.9

Along with a reduction in overall staff numbers there has been more subtle changes in the composition of the workforce in rail. In 1983 46% of the workforce was employed in engineering and track operations and 38% in freight handling. Only a very small number of the freight staff were customer interfacing in marketing or sales roles. By 1990 organisational changes resulting from market conditions and internal performance requirements saw changes. Only 32% of the staff were in either engineering or operations while these in freight totalled 36% of the total. In 1990 7% of total staff were involved in freight marketing. At the time of privatisation that number had risen to 9% and in 1997 it was 13%. Since 1991 the number of staff involved in engineering or operational work has remained at about 40%.

Cost Structure

As well as reducing the absolute level of personnel costs, a principal goal of the reduction of staff numbers has been to increase the volume sensitivity of operating costs. A discussed

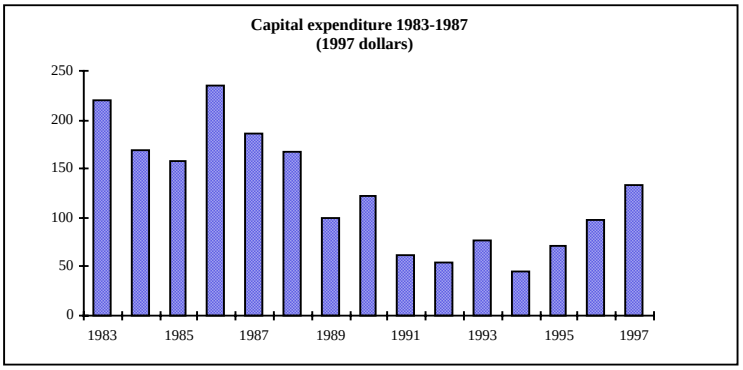
earlier this was a critical element in increasing competitiveness relative to road carriers. As a result of the lower staff levels, staff costs (excluding severance costs) as a ratio of total operating costs has decreased from 60% in 1983, to 42% in 1997.



Capital expenditure

Capex

The reduction in staff levels and improved work processes were possible only with the increased use of new technology and information systems. Investment over the period 1983 to 1997 is shown below. The graph shows that capital expenditure over the last 10 years was heaviest prior to, and during, the period of staff layoffs. It should be noted, however, that changes in accounting treatment of investment relating to capitalised expenses mean that the comparison of these numbers over time should be undertaken with caution.



Financial Performance

9 Financial Performance

Approach

The analysis of financial performance follows the steps of the market approach, it has 3 distinct phases, the market outcomes directly affected the financial performance, and formal performance reviews led to strategic decisions to improve performance. In each period (83 to 88, 89 to 93 and 94 to 97) the financial analysis review considers;

- the financial consequences of market outcomes
- objectives from performance reviews
- actual operating performance that resulted

1983 to 1988 - Deregulation

Performance Reviews

In the 10 years prior to privatisation the performance of railways in all its structural forms was the subject of constant performance review, especially by US consultants Booz Allen & Hamilton. In the face of deregulation of the trucking industry in 1983, Rail Corporation Directors brought Booz Allen in to undertake a review of operations and strategic options for the future of rail in NZ. Their concern was whether rail had a sustainable business with a deregulated road transport sector. The 1983 review was very significant because it identified the key factors that rail needed to deal with if it was to be competitive over the longer run and set the organisation down a commercial path that became more tightly focused as time went by.

Rail needed to:

- lower its freight cost structure to match that of road transport
- accept that it could lose up to 25% market share
- generate productivity improvements
- close some of the workshops
- review ferry operations
- organise on a more commercial basis

Rail's continued participation in the market place was the subject of a series of strategic options, with both passenger and freight reviewed in some detail. BAH recommendations were implemented almost to the letter and over the 5 year period to 1988 much of what BAH had forecast did indeed come to pass for that period. Rail's costs, especially for freight, were restructured with a very heavy emphasis on investing to upgrade assets and productivity improvements from process upgrades and limited staff reductions. Freight was defined as the core business, with passenger services viewed as incremental to the core.

Market Share losses

The financial consequences of the market share losses and the price reductions that rail experiences were severe with freight revenues dropping 37% in the period, substantially resulting from the real price reductions discussed in section 4.2.2. Special note should be

made of the influence of property revenues and the level of the subsidies received from government (see the following table). Two other important points to make relate to the sale of the road bus business leading to the discontinuation of that revenue. The constant restructuring makes the comparison of different revenue classifications hazardous over this period. The road service business had been part of rail operations for a number of years. But because this review is of the core rail business that was privatised, the bus business is not analysed in detail in this report.

OPERATING PERFORMANCE - CONSTANT $000

31 Mar	1983	1984	1985	1986	1987	1988
OPERATING REVENUES						
(000's) Rail Freight	640,546	556,283	516,621	475,129	445,155	422,07
Rail Passengers	116,574	113,156	68,678	82,420	71,531	
Passenger Group						139,33
Road	67,721	70,215	68,584	74,718	81,762	
Sea	95,914	87,331	87,097			
Sea Rail				85,334	98,169	63,659
Other	16,293	23,450	13,683	18,108	15,110	4,93
Property			6,605	16,994	22,490	64,216
Subsidy in rail (passengers)	134,079	116,721	89,907	99,634	92,081	52,973
TOTAL OPERATING REVENUES	937,038	850,940	760,764	753,488	734,576	693,08
OPERATING COSTS						
Personnel Costs	709,134	604,292	570,750	605,732	599,173	584,65
Depreciation	48,931	63,299	63,602	65,662	67,150	69,620
Materials & Services etc	282,264	197,681	197,570	198,889	152,981	260,79
Other Costs	110,868	99,493	89,074	107,688	124,783	
TOTAL OPERATING COSTS	1,151,656	964,881	919,098	977,907	943,430	913,64
EARNINGS BEFORE INTEREST & TAX	(214,619)	(113,248)	(159,045)	(224,303)	(208,466)	(220,156)

Costs

In absolute terms rail's cost levels did decline with the most significant drop taking place in 1984. For the remainder of the period costs were unchanging in real terms. During 1983-1988 it appears that rail did not make adequate headway in gaining real cost reductions and, by using basic cost estimations in the absence of economic cost models, their freight business is estimated to have been at a cost disadvantage relative to trucks. *BAH estimated that long haul trucks costs were about the same level as rail in 1986.*

Balance Sheet

In addition to their deteriorating operating performance, by 1988 rail was also facing a crisis on its balance sheet brought about by the big investment projects that were described in section 4.2.3. As one element of the essential productivity improvements BAH, in 1983, recommended an investment programme to update rail's older rolling stock and infrastructure assets. These programmes were <u>in addition</u> to the major main trunk electrification project that the government imposed. In the '83 to '88 period rail spent $914m (constant 1997$) on capital projects. The difficulty with their investment programme was that rail simply had an inadequate cash flow to fund the investment and, in addition to the capital plan, they needed to borrow to fund their operating losses. This need was not unexpected, BAH had predicted the requirement to borrow to fund the capital programme, however extremely high local interest rates helped to expand the costs of rail's debt. By 1988 rail had $1billion

of debt compared with $200m in 1983. Shareholder's funds were nearly halved in the period. As will be seen the financial crisis came to a head in 1989 when $1billion of debt had to be written off rail's books. It was taken over by the government.

1986 Optimism

BAH were brought back in 1986 to review progress on implementation of their 1983 report. Rail Corp management was deeply concerned about the rate of market share loss and the collapse in financial performance. Advisors to rail management were optimistic that the measures that were being taken would reverse the trend of steeply declining revenues and poor labour productivity especially given the decision to restructure to achieve a tighter focus on markets. This restructuring involved adjusting the freight business to bring the major commodity groups (paper, logs, coal etc) into management focus and allow both market and cost issues to be managed together. Financial performance through to 1988 did not show any improvement beyond a small reduction in costs.

It is not possible to review incremental costs and the activities where Rail generated contributions to fixed cost over this period. Rail did not have cost models to assess the avoidable costs of each business area.

1989 to 1993 - Financial Restructuring

Overall

This period was of major importance when looking at the financial performance of Rail in this period as well as post privatisation. Significant organisational, financial and resource restructuring took place as a result of the poor financial performance in the 1983 to 1988 period. Looking at overall organisational performance during this period, 4 particular aspects stand out.

1. The steep revenue decline that had existed from 1983 to 1988 persisted,
2. In 1989 approx $1.0 billion of debt was written off the balance sheet of NZ Rail Corporation.
3. NZ Rail Ltd, a "Rail" only business was established in 1990.
4. NZ Rail Ltd was sold to private interests in September 1993.

More Optimism

In the continued absence of suitable internal resources, BAH were still used as rail's performance advisors and in July 1989 they reported on the long term viability of a stand alone rail business. Management were advised that rail's poor financial performance in the period to 1988 would become stable by 1991, based on the belief that the major changes in the road transport market place were complete and that freight rates for road transport would not drop further. As noted earlier, long distance road fees had been removed in 1988 and the restructuring of truck, tyre and diesel tariffs had resulted in a lower cost of ownership and therefore lower rates for freighting goods by road. As discussed in section 4.2.2 rail

increased price in both the freight and passenger rail markets in 1989.

Actual results

On a normalised basis (1989 results were for 15 months. 1991 was for 4 months as the old Rail Corp. and 8 months as new NZ Rail Ltd.) revenue continued the trend of the 1980's and in real terms it fell right through to 1993. The severity of the decline in both freight and passenger revenue was masked somewhat by the growth in property related revenue - they reached $100m in the 15 month reporting period in 1989 as well as the sale of the bus passenger business. With the market share losses, revenue for the core freight business fell an average 3.9% pa through this period demonstrating just how sensitive the market was to price.

The classification of revenues from Rail Corp to NZ Rail was not transparent and direct comparison over time is just not possible. At the same time Rail made changes to their financial systems that changed the definition of the revenue that was reported. Part period reporting adds another layer of complexity to the results.

OPERATING PERFORMANCE - CONSTANT $000

	15 months	8 months			
	30 Jun 1989	30 Jun 1990	30 Jun 1991	30 Jun 1992	30 Jun 1993
OPERATING REVENUES ('000's)					
NZ Rail Freight	366,779	354,769	237,101	333,167	321,133
Passenger Group	169,186	120,495	27,218	54,177	50,450
Sea Rail	90,365	93,409			
Inter Island Ferries			38,342	59,042	64,182
Other	2,719	6,938	31,829	27,718	29,497
Property	102,994	2,888			
TOTAL RECURRENT OPERATING REVENUES	732,431	578,715	334,489	474,041	465,561
OPERATING COSTS					
Personnel Costs	594,078	384,214	204,546	271,689	245,650
Depreciation	93,735	41,562	11,399	23,577	26,646
Materials & Services etc	380,699	239,496	161,254	211,212	193,130
Other Costs					
TOTAL RECURRENT OPERATING COSTS	1,069,512	665,326	377,784	506,667	465,411
EARNINGS FROM OPERATIONS	(337,079)	(86,917)	(42,989)	(32,662)	121

Cost Reductions

The real improvements in operating earnings were sourced from real reductions in the costs, mainly reductions in personnel numbers which fell from 10,000 to 5,000 at the end of 1993. On a normalised basis people costs halved from 1989 to 1993, though it should be remembered that this reduction was a mix of both fewer people in NZ Rail Ltd. and the fact that the people not needed in the core NZ Rail were retained in the old Rail Corp structure and as such do not appear in this analysis after 1989. The 1989 debt reduction on the balance sheet was accompanied by a corresponding reduction in asset values that manifested itself in a lower depreciation charge to the operating statement. The purchase value of other materials and services also fell through the period as operating processes, maintenance levels and the like were reviewed and costs reduced. Again a portion of these costs were left in the

old Rail Corp. in 1989. It should also be noted that by 1989 rail no longer received direct subsidies for it passenger operations from central government though regional local body support was maintained in Auckland and Wellington and is reported as passenger revenues.

Revenue Growth

It was clear that in 1989 rail management understood that, to survive, they had to tackle the market share and revenue losses as well as improve their earnings position with at least cost reductions that matched the revenue losses. With privatisation as an objective they needed a core rail business that would be attractive to potential buyers however, in its first year to June 1991, NZRL experienced a financial operating loss that persisted until 1993.

Restructuring Costs

The period of financial restructuring to 1993 also included significant redundancy costs. These costs were either actual cash costs paid to staff who left NZ Rail or were accounting provisions taken into the balance sheet to cover future staff reductions. At the time NZ Rail was sold the redundancy provision in the balance sheet was $69m and a total of $438 million (constant 1997$) had been paid to reduce staff levels.

Cost Models

One of the direct consequences of management seeking a strong market segment focus was the development of detailed economic cost models to better understand their cost structures in the competitive environment. Those models made management aware of their cost disadvantages. The price levels that result from these basic cost differences seem to be the fundamental reason why rail continued to lose market share and had declining revenues through this period. It was not until the privatisation period that the cost structure of the core freight business was reduced to a level that allowed rail to successfully compete across a number of market segments.

Contribution

With rail starting to focus on yield management of the freight business previous management change is reflected in the form of improved contribution to fixed and common costs. By 1993 it seems that the contribution per NTK from Bulk Goods had improved from a small negative to a small positive sum, and Export Goods also improved.

In this analysis, incremental costs are those costs that are avoidable if the particular activity is discontinued. In that regard they are most useful for performance analysis. They are not strictly marginal, in a network business the marginal cost of 1 more output unit is extremely small and an increase of 1 unit is not generally applied, rather an increment of capacity is added. Rail update their incremental cost models annually based on a thorough review of their current cost structures.

Passengers

Passenger contributions are not as readily available for this period, financial models of direct costs had not been developed for the individual rail passenger.

1990 Restructure

In 1989 Rail Corp had liabilities exceeding $1.4 billion and virtually no shareholders funds. This represented the culmination of their operating losses and the funding requirements of their capital programme. Rail Corp management sought Government assistance with restructuring the Corporation to allow the core freight business to perform as they felt it could and to facilitate its sale if that was desirable. The 1989/90 financial and organisational restructure was implemented in two stages, the first was a $360m equity injection by the Government in 1989 that was accompanied by a guarantee of the debt and the second saw the creation of NZ Rail Ltd. in October 1990 and the retention of the $1.1 billion of debt as well as land and non core businesses in the balance sheet of the old NZ Rail Corporation. NZ Rail Limited's balance sheet was simple, made up of core rail assets at $102m in value and shareholders equity to fund them plus the current portion of both assets and liabilities.

The assets themselves were written down by approximately $1.0b, with the values of permanent ways, bridges, electrification and land and buildings making up most of the write down.

1994 to 1997 - Post Privatisation

Success

The financial performance of NZ Rail/Tranz Rail since privatisation is represented as a success story. It has had a lot of exposure both in NZ and overseas (interest in Tranz Rail performance has come from UK, Australia, USA as well as less developed countries). The performance in this period follows from the stability that is now evident in their market share and revenues. While their share of market volumes has stopped falling, prices have continued to fall in most of the freight segments but in real terms both freight and passenger segment revenues have reversed the long term trend. Overall real revenue growth has averaged 6% pa over the period, resulting from strong growth in freight volumes that were supported by small improvements from rail passengers and a healthy 8.5% pa increase in InterIslander revenues.

OPERATING PERFORMANCE - CONSTANT $ 000

	1994	1995	1996	1997
OPERATING REVENUES (000's)				
TranzRail - freight	349,085	386,703	402,942	404,900
Passenger Group	53,798	60,266	63,453	66,700
InterIslander	67,803	75,544	82,258	85,100
Other	20,445	40,851	26,210	22,688
TOTAL OPERATING REVENUES	491,130	563,364	574,862	579,388
OPERATING COSTS				
Personnel Costs	225,962	208,303	213,783	214,539
Depreciation	24,555	26,633	27,343	28,994
Materials & Services etc	193,246	224,770	226,587	236,591
Other Costs	2,226	3,043	6,447	15,682
TOTAL OPERATING COSTS	445,989	462,750	474,161	495,806
EARNINGS FROM OPERATIONS	45,141	100,614	100,701	83,582

Cost Management As a consequence of decisions to further improve operating performance, personnel costs were reduced in real terms but there was a small increase in total costs. The productivity analysis in Stage 2 of this review would look at the consequences of this in more detail. Also in keeping with the increasing level of capital investment, depreciation grew over the period.

Cost Models In parallel with their operational cost reductions, Tranz Rail has further improved their understanding of the cost structure of the freight business through continual development of their incremental cost models. This capability is particularly targeted at supporting pricing decisions in their market segment business units. Their efforts at understanding and reducing costs and therefore their direct competitiveness has also improved significantly.

Passengers Passenger contributions show that the performance of these services has quite obviously improved. Although the approach to identifying shared passenger costs (as opposed to directly avoidable incremental costs) has an element of arbitrariness in the allocation of costs, there is a significant and consistent positive trend in the financial performance of passenger services.

InterIslander The revenue and expenses for InterIslander services include both passengers and commercial vehicles because, from 1994 expenses were combined and are not available for these services individually. Note also that these contributions are at the level of individual services and do not include the overhead costs associated with managing the passenger business unit.

Turnaround The financial turnaround of the rail business has been achieved because of a marketing strategy that was born from a strong management desire to see the core freight business as successful, and a financial restructuring to remove a legacy of debt from the balance sheet. Success in the market came from a better understanding of the customer strategies necessary to succeed, and the selection of the people and tools to make it happen. An essential element in the process has been an understanding of the cost levels that were required to compete in each segment and the tactics of getting costs to those levels.

Rail Efficiency

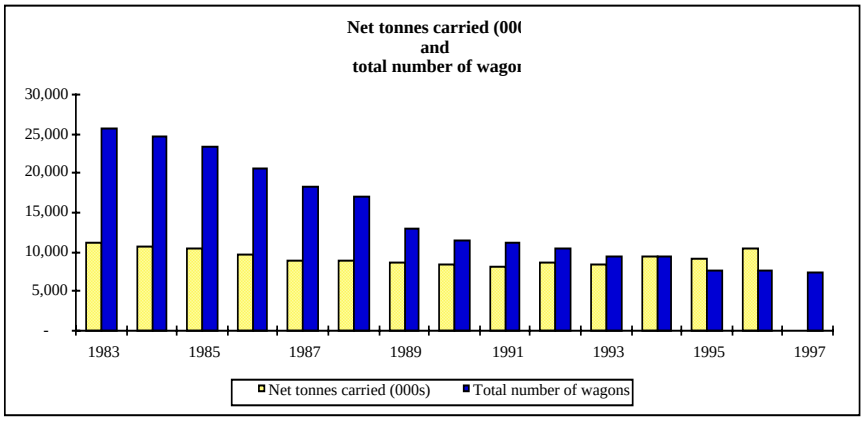
10 Railway Efficiency

Although efficiency and productivity will be reviewed in depth in Stage 2 it is useful to consider some basic productivity indicators.

Asset Utilisation

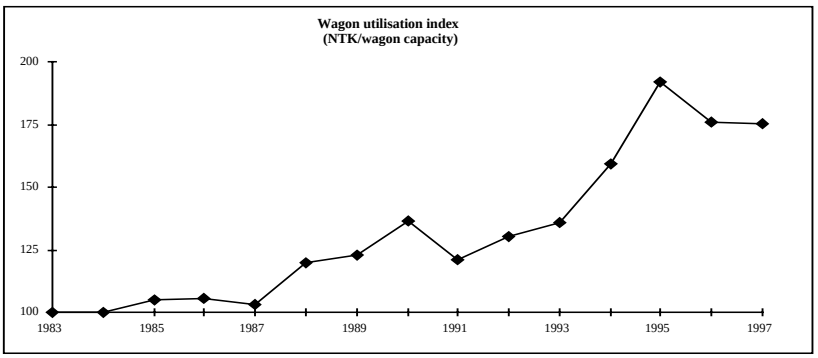
Wagons

The core hardware of the freight business is wagons. The programme to rationalise and modernise the wagon fleet has dramatically reduced the number of wagons from 25,750 in 1983 to 7,280 in 1997 (a reduction of 75%). The intention has been not only to bring the size of the wagon fleet more in line with the amount of freight being carried by the business, but to be more responsive to the market and the needs of the customers by constructing wagons suited to carrying their products as efficiently as possible. While the number of wagons decreased significantly between 1983 and 1997, the net tonnes carried in 1996 was similar to that in 1983. The total number of wagons and thousands of net tonnes carried are shown in the graph below.



Utilisation

One measure of utilisation of the wagon fleet is the ratio of net tonne kilometres to wagon capacity. An index of this ratio shows that the utilisation of the wagon fleet increased significantly over the period 1983-1997, as illustrated in the graph below.



Train Size & Speed

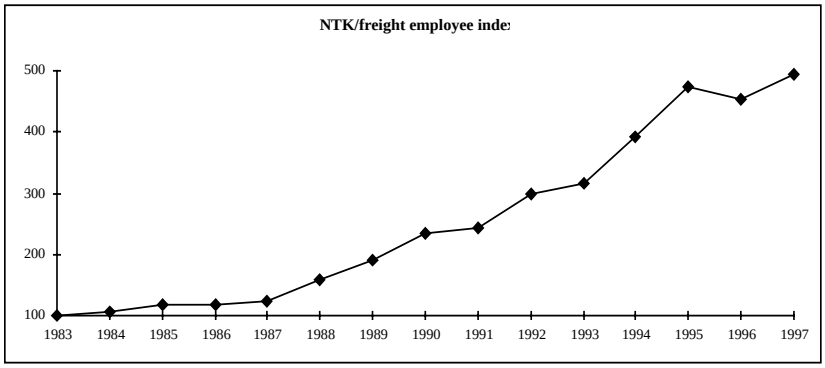
At the same time as the size of the wagon fleet was declining, train sizes were increasing. Between 1983 and 1995, the average net train size increased nearly 30% from 263 tonnes to 339 tonnes. The number of mainline locomotives decreased from 324 to 193 over the same period. As noted previously, the amount of freight being carried has not changed significantly over this period; however, these figures indicate it is being carried with less labour, and lower operating and maintenance costs.

Productivity

NTK/Employee

The principal measure of productivity used by Rail themselves is NTK per employee which has improved dramatically since 1983. The improvement was gradual between 1983 and 1987, but was subsequently more rapid as the impact of the staff redundancies and capital investment took effect. Revenue earned per employee has also improved, doubling from $50,000 in 1983 to $100,000 in 1996 (in 1997 dollars).

The chart below shows NTK per freight employee as a productivity index.



Privatisation and The IPO

11 Privatisation of NZ Rail and the IPO

The Basis for Privatisation

SOE's

New Zealand state owned limited liability companies are now generally identified with the State Owned Enterprises (SOEs) that were created during the reform period of the mid-late 1980s under the SOE Act of 1986 (see Robert Cameron and Stephen Jennings (1987, pp.124-127) for a detailed chronology). The principles for trading operations are encapsulated in the SOE Act of 1986. Each SOE is to function as a limited liability company. Management is to have standard commercial objectives, subject to the caveat of the contents of a Statement of Corporate Intent that has to be approved by the government each year. It sets corporate policy for the ensuing two years and other matters to do with facilitating monitoring. The Act provides for a Board of Directors accountable to the minister of finance and another minister, who hold the shares.

SOE Limitations

Because SOEs are subject to the same competition laws facing private enterprises and have no contracts giving preferential access to government procurement or finance, an SOE is on a similar footing to privately-owned firms. They differ in a number of respects. These include the fact that their limited liability status is not entirely credible: it is unlikely that the Government will let a major SOE fail. This both reduces incentives for prudent management and the cost of capital to these firms. SOEs do not have traded shares and thus are not monitored by the range of equity holders and analysts that scrutinise private sector company performance. Also, non-tradability of SOE shares limits the range of incentive contracts that are available to reward managers: these cannot include equity options, for example.

The SOEs' ongoing relationship to government, albeit much weaker than that of a government department, affects their focus on business performance. First, the possibility of the introduction of non-business objectives is ever present and this reduces concentration on business by SOEs: in the jargon of economics, it is simply very hard to make the business objective function of SOEs time consistent. Secondly, the government can, and does in fact, influence investment and other decisions through the statement of corporate intent and its ownership. This influence detracts from the pursuit of business objectives subject to the provisions of competition statutes. Thirdly, the appointments process for board members of SOEs can result in directors that may take more cognisance of political issues than would those appointed in the private sector (although the SOE Act is specific about the qualities of directors). These are all impediments to company efficiency for which there are preferable ways of handling in the private sector: they thus provide arguments for privatising SOEs.

Rail Ownership

New Zealand Railways Corporation was incorporated as a limited liability company in 1983. Despite the arrival of the SOE Act in

1987, it was never converted to SOE status under this Act but was monitored as per the State owned Enterprises Act. NZ Rail Corp had the efficiency impediments of SOEs under the 1986 Act, plus other difficulties. Its governance structure included the Board being appointed directly by the government of the day, and the "controlling" minister and the minister to whom the board was accountable was one and the same. This intimate link between the company and the politicians affected the appointment of directors exacerbated the time consistency problem and affected the investment decisions that were taken. This was heightened by the fact that railways had been used for all sorts of educational and social programmes in the past. In short, we would expect railways efficiency levels to improve at least as much from privatisation as would standard SOEs under the 1986 Act.

So what of the process

1988 – The Start

Early evidence of the desire for sale of Railways Corporation of NZ is available from mid 1988 and is public information from 1989, by which time the company were openly planning for a sale, possibly in late 1992. Management designed privatisation business plans exist from 1989 and at that time external advice had been sought on getting Rail Corp ready for sale. It appears from the research that privatisation was the real reason behind the creation of NZ Rail Ltd., planned in 1989 and implemented in 1990. The Board and management wanted to shed government ownership and run a genuinely commercial railway. Their frustrations with state ownership are evident in both their business plans and other documentation.

Strategy

Although rail did not make a financial surplus (in real terms) from its operations until 1993, it had the potential to do so. A minimum of both capital and labour resources had been included in the new structure, so costs were low, operations had the mandate to make them lower. Meanwhile the marketing units had the strategy to secure volume growth in all markets but more especially in bulk commodities where cost efficiencies would improve financial contributions. Management had also identified several value-added strategies in freight handling, especially door to door and refrigerated road transport, where it is anticipated that revenues would be higher despite higher costs of handling.

Value added was also designed to flow from developments in the area of customer service (info on freight and billing) and electronic data handling.

Privatisation Process

By the time NZ Rail Ltd. was formally put up for sale the NZ Government had developed a well established sale process, as follows

Sale Process

decide to consider selling asset
→obtain private sector advice on process
→undertake scoping study
→consider regulatory/social issues
→decide to sell
→decide on transaction

The sale transaction itself was by a two-stage process open tender that sought to maximise sale price.

Scoping Studies

The first government scoping study was commissioned in 1990 (A.T. Kearney, CS First Boston, 31.7.92) and followed close on the heels of two BAH 1989 studies that had carefully considered the long term viability of NZ Rail core business on a stand-alone basis. Their first report defined what resources would be needed in the stand-alone core business after making two assumptions about when some form of competitive equilibrium was reached in the market and that rails cost structure was efficient. BAH envisaged a core business of about 5000 employees that needed about $100m pa of capital expenditure to support its operations. They also identified that $300m in cash would need for redundancies and to upgrade some assets over the following 2 years. On the basis that NZ Rail Ltd. was more or less set up this way, it seems that BAH's advice was acted on by NZ Rail Corp. and the government.

The second report was a detailed analysis of the competitive status of the core business and the steps/strategy needed to make it viable. BAH projected a positive operating cash flow from 1992 and recommended tactics to meet the financial objectives.

The scoping study recommended that government sell immediately but noted that the price may be less than it otherwise would be because of various cash flow risks. The scoping study highlighted that the core rail business had positive economic value but in the short term there was doubt about how competitive conditions would evolve, and therefore cash flows were regarded as risky. BAH's prediction that $300m was needed for extraordinary costs was assigned as devaluing the business for potential purchasers. The government chose to restructure Rail Corp, defer privatisation and, between 1990 and 1992, two further scoping studies were undertaken to determine the return maximising time to sell. In late 1992 the decision to proceed was taken and Bankers' Trust were selected as government advisors for the sale. They proceeded to short list potential bidders. These are thought to have included:

- Wisconsin Central/Berkshire Partners consortium (Tranz Rail)
- Sea Containers
- Ports of Wellington/Sofrana consortium
- Ports of Tauranga/Lyttleton Pacifica consortium
- Freightways/Noel group
- Mainfreight

Wisconsin Bid

It appears that three serious bids were received by the government, Wisconsin, a combined ports consortium and Freightways. The $400m successfully bid by the Wisconsin consortium in September 1993 was the only "clean" unconditional offer and $328.3m of the cash went to the government for all the shares in NZ Rail Limited and $71.7m to retire debt.

Shareholding following Privatisation

The share ownership of Tranz Rail Holdings remained in private hands through to June 1996, although there were some changes to the number of shares on issue and to the proportion owned by the original consortium members. The following table describes the ownership structure.

Shareholding Structure % of total

	Sept 93	June 94	June 95	June 96	June 97
Wisconsin Central	27.3	26.7	31.3	22.7	22.5
Fay Richwhite	31.8	31.1	28.2	20.4	19.2
Berkshire Assoc	27.3	26.7	25.2	18.3	5.4
Public/Other	9.1	8.9	8.0	30.4	43.8
David Lloyd	4.6	4.4	4.0	2.9	2.9
Management	0	2.2	3.2	5.2	5.5
Staff/Directors	0	0	0	0	0.6
Total Share on Issue – m	114.7	121.8	95.1	126.8	127.6
Share Price				$6.88	$8.5

IPO

Public Offer

On 22 May 1996 Tranz Rail Holdings issued a prospectus offering 27 million ordinary shares for sale to the public at a price of $6.19. The offer was oversubscribed and a greater proportion of the companies shares went into public ownership.

Counterfactual

12 Counterfactual: In General

Overview

In the case of Tranz Rail the counterfactual can be defined as the most likely scenario that would have occurred if privatisation had not taken place. A counterfactual experience is required in order to assess the economic efficiency of the privatisation process. It is used for comparison with measured actual performance in order to assess the welfare change that are attributable to the change from government ownership to private ownership. There are various generic sources of uncertainty that can affect the outcome in any study of privatisation.

Firstly, the counterfactual is necessarily an estimate based on judgement and therefore there is uncertainty about its specification and company performance under it.

Secondly, there is uncertainty about the performance of the privatised company due to its management: the fact that point estimates are used to calculate actual performance means that it may suffer/benefit from random outcomes. Examples include data measurement errors and performance-affecting factors such as the state of the economy at the time of privatisation. Because any individual study will be affected by these random inputs, it is only over a number of studies that a complete empirical picture of the welfare effects of privatisation will emerge.

Two comparisons

There are two sorts of counterfactual. The first entails comparison with other railway companies or entities. In common with the case of most privatised industries in New Zealand, there are no New Zealand railways that can serve as benchmarks. The are data on the performance of railways in other countries that would provide some comparative information. Such analysis would contribute to our understanding of the performance of New Zealand rail, but the absence of a common economic environment would limit conclusions that could be drawn.

New Zealand railways is different from most other railways. It is smaller, reflecting market size. It has a narrow gauge with low capacity wagons and short trains. These characteristics render benchmark comparisons with best-practice railways – such as certain of those in North America – limited for the purpose of comparisons.

The second approach is to construct a New Zealand counterfactual with which the actual performance of New Zealand rail can be compared. It is this latter approach that we are evaluating for the NZ Railway's privatisation, although we would seek to use cross-country comparisons where the relevant data are readily obtained and germane to the comparison. Initial investigation has revealed data that will be of limited use for this purpose.

Rail Privatisation

Consider the privatisation timeline set out in the next figure. For illustrative purposes only, the figure incorporates a slow rate of improvement in the entity as a government department that is

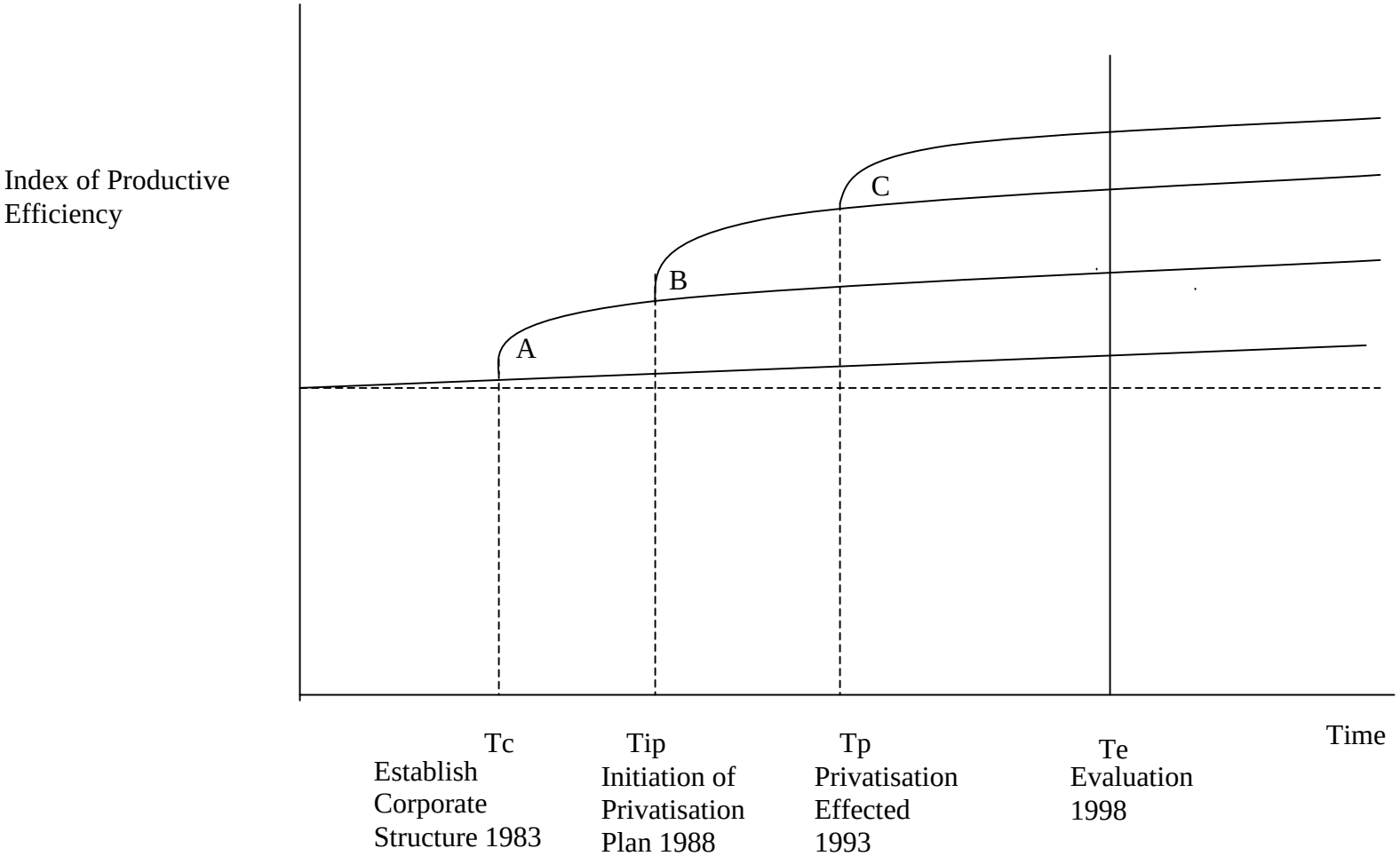
represented by the bottom, solid line, improvements in performance with each organisational change, starting with corporatisation. At the time of evaluation we see from the figure that performance gains at the date of evaluation, Te, will be due to performance growth that:

- Would have occurred anyway,
- Was due to corporatisation,
- Was due to commitment to privatisation, and
- Was due to implementation of privatisation.

Welfare

The diagram indicates the importance of establishing the counterfactual (e.g. government department, or SOE) and the performance of the counterfactual entity; but it is a significant abstraction from what is really required. What is not apparent from the diagram is that the comparison should be based on welfare enhancement, not simply on productive efficiency, or x-efficiency, that is a component of welfare. Welfare enhancement will require incorporating output market welfare changes, and this will entail catering for market changes over time. For an extreme example, suppose that the privatised firm was more productive (in terms of x-efficiency) than its counterfactual (an SOE say), but that because of market changes it was not viable. In this case, despite the productivity improvement, it would not be in society's interest – absent external effects – for the company to remain in operation: there would be no welfare gain to its continued existence. Thus, application to New Zealand Rail must embody in the counterfactual the market changes that have taken place. The specific counterfactual is mooted in the next final section.

The Timing of Privatisation and Construction of the Counter Factual



12.1 Measurement of Welfare

Approach

The approach for the measurement of welfare is, in general terms, that of the *ex-post* "cost-benefit analysis" methodology that is more or less that which is described in the *Review of Methodologies for Estimating the Welfare Impacts of Corporatisation and Privatisation* (the *Review*) that was prepared for the New Zealand Treasury in 1997. There are New Zealand Rail specific characteristics that are not addressed by *The Review*, but which are critically important to an evaluation of the privatisation of New Zealand Rail. In particular, these include multiple outputs, matters of output market structure and dynamic change in these markets.

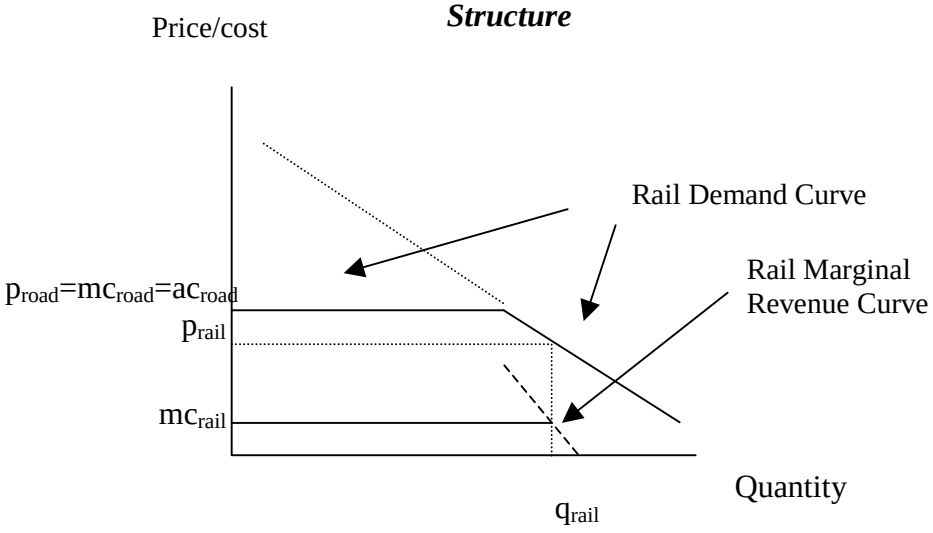
Output Markets

The previous analysis has defined 7 classes of outputs (see the product-flow diagram of section 7). They differ in that each has it own characteristics (passenger, handling requirement, distance/volume requirement) that mean that they are not close substitutes. The key characteristics of these outputs are that each falls into one of two market structures. These are now described.

Evidence presented in previous sections is that other modes of transport are vigorously contestable markets in their own right and that they provide the benchmark competition for much of rail's product. In this discussion, road transport is used as an example of constant average and marginal cost industrial competition that would be expected of an almost competitive market.

The two proposed markets are illustrated by the following simple diagram of a competitive fringe.

1.1 Market Structure



In the market structure diagram the cost curve for other modes of transport – road is the example - is flat and therefore represents a constant cost industry. This is reasonable since there are arguably no congestion costs over this period in the modes of transport. The demand curve facing rail has a kink because of the competitive fringe that is provided by road transport. As it is depicted in the diagram, there is a little market power for rail. It depends upon the elasticity of demand beyond the kink.

There is a welfare gain to the existence of rail over road transport because of the assumed lower marginal cost of rail in this market. It consists of the lower resource use that is characteristic of rail in this diagram and the willingness to pay (less the cost) for the extra output generated by the lower cost of rail transport. If it is assumed that the output is quite inelastic[1], as seems reasonable for intermediate products, then the extra output will be very small and the price set by rail will be negligibly below that of road transport. In this case, welfare resulting from the presence of rail in this market will simply be the economic profit of rail.

Now, for a market segment for which rail has no cost advantage, then $mc_{rail}=mc_{road}=ac_{road}$ and there will be no economic profit for rail in that segment. Furthermore, there will be no welfare gain from rail's participation in that market. The model of a perfectly competitive market has to be viewed as a very crude approximation: if it was exactly correct then either rail would not compete in that market or rail would have all of the market.

In reality, there will be some product variation on diminishing returns that enable rail to exist in part of the market. In product variety models welfare can be estimated from hedonic price indices that express price as a function of product characteristics. However, for rail competing with other modes of transport the estimation of such indices will not be possible. Firstly, the indices would have to be estimated from all participants on an individual operator basis, in the market and these data are not available. Secondly, even if they were available many of them – such as timeliness - are not quantitatively measurable. Hedonic indices therefore, are not estimable. Product variety will be indicated by various measures, and qualitative conclusions drawn about it. Nevertheless, to the extent that improvements in product quality provide welfare in excess of that provided by their competitors in the markets taken to be almost perfectly competitive, welfare changes will be quantitatively under estimated.

In sum, the 7 markets will be placed in two categories:

- one that is taken to be (almost) perfectly competitive, and
- the second wherein a competitive fringe is assumed.

In both cases welfare will be indicated by profit buttressed qualitatively by indicators of product variety.

[1] Note that this inelasticity should not be construed as inelasticity to rail *per se*: because of the fringe competition, rail faces a very elastic demand for its output.

The welfare assessment of privatisation will, of course, be affected by the counterfactual.

Calculation

The productivity study would subtract the rate-of-growth in aggregate output from the rate-of-growth of input use [see Boles de Boer and Evans (1996)]. It would seek to estimate the marginal costs of the outputs (though these would not be reported) to construct an output aggregate (Fuss 1994) and it would aggregate inputs using the standard index (dual) methodology.

There will be issues to solve in constructing the capital stock series, especially given that the core rail business was in the 1980s combined with other activities. Nevertheless, it is considered that reasonable capital stock figures may be constructed. There will be the issue of the embodiment of technological change: while it will not be as acute as for telecommunications, it will mean that the productivity change measure will reflect new technology as well as organisational change. It is difficult to separate these two. In the case of Tranz Rail, new technology was adopted before and after privatisation.

Following the previous justification, the welfare change over time will be measured by the real economic surplus over time, calculated using the estimated capital stock. It will be adjusted by the (either annualised or valued at the date Te) of redundancy and investment payments. The redundancy payments will be included as a cost to represent some compensation for employees earnings in the company. This approach is justified on the assumption that these payments induced employees to leave the company.

Cost-benefit analysis is essentially a comparative-static methodology. This will be manifest in the static snapshots that will be compared. The investment data will help determine a measure of the capital stock at points of comparison, but to include it as a cost as well, would be to double count. It will be interesting and useful however to evaluate the development of the company for sale (1989-1993) in which case the sum invested will be of direct relevance.

The final welfare measure will be assessed against counterfactual scenarios that are proposed in the final section of this report.

Other Issues

In addition to the welfare calculations, there needs to be considered whether subsets of economic agents benefitted or lost differentially from the privatisation of New Zealand rail and the impact on the government.

Differential Effects

Differential effects are only of direct relevance to consumers of final goods. They can arise from income effects, or consumption decisions.

New Zealand rail provides freight and passenger transport. Freight is an intermediate good the cost of which is distributed through to final prices in myriad ways. The implications of changing transport prices for final goods prices would be a major research exercise in itself, and yet it is only the effect of final consumption or investment goods prices that is of interest for questions of incidence. Also, it is noteworthy that the market for rail freight is, following the earlier assessment, competitive in many markets. The existence of close substitutes means that the performance of railways has negligible implications for incidence.

For passenger transport there are also very close substitute modes of travel and thus, while passenger transport is often a final consumption good, the performance of rail will not materially affect the welfare of rail passengers. Certainly, the long distance and urban passenger travel has close substitutes. In fact, even the inter-island passenger traffic also has existing and potential close substitutes that appear to constrain pricing. It also makes up a very small proportion of rail business.

A proportion of the shares are held by foreign owners and they are traded on a US stock exchange. While, this entails remittance of profits overseas, there need not be any implications for New Zealand's foreign exchange position given that the company was sold in a competitive tender. *More on this in stage 2.*

Gov't Cash

The final study will report on the implications of the privatisation for the government's fiscal position *More on this in stage 2.*

Conclusions and Recommendations

13 Stage 1 Conclusions and Recommendations

The stage 1 analysis in this report reveals a story that can be simply captured in a chain of events, as follows;

- deregulation led to:
  →market share collapse 1983 to 1993, led to;
  →financial crisis in 1988, led to;
  →decision in 1988/89 to privatise; and
  →financial & organisational restructuring in 1989/90, led to;
  →privatisation in 1993, concurrent with;
  →improved qualitative and financial performance

The market, financial and productivity indicators tell part of the story. By themselves however they do not capture the true the state of Rail in 1988, nor do they adequately relate how the decision to privatise was made or the real forces that were behind the sale. For these we draw on assessments in 1988/89 and a range of events of the 1988-1993 period.

The History of the Privatisation of NZ Rail Ltd

This history is substantially based on material from interviews with people who were central to the sales process.

The Start

The first **privatisation** discussions emerged from NZ Rail's Board in 1988 when two members of the Board and advisors started work on whether it was possible to privatise Rail and how to do it. One director, in particular was very keen on the sale option and while the Board's focus was on the commercialisation of rail they worked as if privatisation, was to take place. A private Board committee was formed to further the idea. At this time a presentation to the Board emphasised the design of incentives for senior managers that would focus them on preparation for privatisation. There is no evidence of such contracts: although senior managers' contracts over the 1990-1993 period did include bonuses that increased with profit levels that exceeded forecast profits. Of course, the prospect of privatisation did provide senior managers with a probability of very rewarding contracts upon privatisation if their services were retained.

Key senior management was not galvanised at this stage and they continued to assess the privatisation benefits over a period of time. A person was employed to advise on the communications and political strategies to do with privatisation. The period between 1988 and 1992 was devoted to preparing for the sale, in particular a lot of time was spent on property rights (land access and rights of way) as well as selling the non core businesses, for example, buses. An initial valuation was completed in 1989. It set a sale value of

$250m but advisors reckoned that it would be improved if further restructuring was done.

Two additional Board members became the key implementers of the sale. They were to lead the process of explaining the options to politicians, evaluating the risks and convincing the Minister that the business case for sale was viable.

Political Change

The change of government in the 1990 election was material. In 1991 CEOs of SOEs were informed that the impetus for privatisation was reduced. Treasury, who had taken a lot of convincing that a sale was viable, had a change in personnel and it was more difficult to get the new government to accept privatisation. The government was very concerned that rail was not viable and that therefore it would end up underwriting problems when they occurred. Indeed this point of view was present just before the sale. The CS First Boston and AT Kearny report (1992) spent a lot of space evaluating the (potential) rundown of railways, and indicating that anticipated cash flows were very sensitive indeed to prospects.

CEO & Strategy

It was about this time (1990) that NZ Rail developed their customer/market focus approach. Some of the negative views of privatisation may have been a significant in the further development of the market strategy and tipping senior executives over to commitment to privatisation.. One visited USA railroads that had successfully implemented similar marketing strategies and returned to convince management and the owners, that these strategies would produce a financially viable outcome.

Management

It was also at this time (1990) that senior executives became "engaged" in the privatisation idea, they had gone along with it to that point but were more committed when they saw a way of reducing government control and the concomitant frustrations. A Rail manager was pivotal to the success of the sale. He was very heavily involved in resolving the critical property rights issues.

Various of the people interviewed consider that there were two key factors in the success of the sale; convincing the politicians that the risk was with the buyers and management, and getting management engaged and committed to its success. A large amount of work was done on the optimum structure of management incentives and a detailed package was put to the Board in early 1993. It is clear from the evidence of the interviewees that without the incentive of private ownership and the financial incentives to senior management, the performance changes witnessed from the early 1990's would not have occurred, there were simply weaker incentives to make them happen under public ownership.

Skill Levels

Throughout the 1989-1993 period rail continued to have skill problems with the assembly and analysis of strategy and tactical options. A lot of skilled outside help was used in the 1990/93 period to evaluate strategy – much of it came from Fay Richwhite. BAH were out of it by this stage because their role as operating consultants was over.

Strategy Again

A strong debate emerged during the 1990/93 period as to which business model Rail should adopt to be successful after the sale. One view was that Rail should fill the line haul portion of the freight moving transaction and the depot to door portion should be carried out by the freight forwarders. This model would cement the position of the freight forwarder as the owner of the customer interface. Alan Gibbs put a bid together on this basis but under open bidding it was valued lower than the alternative. The other view was advocated by Fay Richwhite. It was that rail could just as well provide the customer with an end to end integrated service and own the customer interface in their own right.

In this alternative, Fay Richwhite argued that the freight forwarding industry is an arbitrage operation and will only exist as long as the end to end freight movers (rail and road) allow them to be there. Recent history has established this point, Tranz Rail appear to be successful in freight movements via their distribution unit that was part of the forwarding industry. Tranz Rail's internal business unit, termed the "kombi" unit, is a term used for the group who transport freight over long distances, for the freight forwarding industry. Tranz Rail's kombi unit interfaced with the freight forwarding industry and volumes there are now declining significantly.

Decision

The decision to privatise was simple in the end, management were convinced late in 1988-89 and the government had two preconditions to be covered: political risk and potential financial problems in the future. In late 1992 they were convinced that there were strategies to minimise these risks, and the decision to actually privatise was taken.

This history is important for documenting the origins of incentives for senior managers, and risks for government that attended the full privatisation process. These affect the counterfactual.

13.1 The Counterfactual

Summary

The situation for New Zealand rail is summarised in the following table of key characteristics.

	The State of Rail			
Characteristic	1983	1989	1992	1993-
Operating Surplus (accounting)	$(214m)	$(42)	$(32)	$0-100m
Market Strategy	No	No	Yes	Yes
Stable Market Share	No	No	No	Yes
Cost/efficient rail & rolling stock	No	Yes	Yes	Yes
Labour input (number employed)	20,000	8,000	4,800	4,800
Customer information systerms	No	No	Yes	Yes
Separate Core Business	No	No	Yes	Yes
Management Incentives	Weak	Weak	Strong	Very Strong
Assessment of downside risk	Extermely high	Extremely high	Very high	Moderately high

More specifically:

- Competition in 1983 was met by massive investment in rolling stock, the rail network and by labour force downsizing.
- By 1989 there was an efficient network but weakness in managerial personnel, no market orientated strategic plan, overstaffing and no stable position in the market.
- The (privatisation) programme embarked on in 1989 resulted in a customer orientated strategic plan that included investment in customer systems and yield management of market segments. It entailed additional staff reductions.
- In 1992 the market share and operating surplus had not stabilised, and yield management was still not well developed. There were signs that the market share and operating surplus would stabilise. Personnel costs were down. The down side risk, entailing the run-down of rail, remained as a real concern (it was regarded as such a possibility that analysis of a run-down was a central part of CS First Boston, &A. T. Kearney 1992. This report also assessed the prospective cash flow as risky and rail management's forecasts as optimistic).
- Throughout its history New Zealand railways has had corporate and board structures introduced at times of poor commercial performance. Typically these have led to improved management. Always – excepting the 1983-1993 period – reversion to departmental control has taken place with an accompanying deteriorating commercial performance.

  There is clear evidence that the decision to prepare New Zealand Rail for privatisation was taken in 1988/89: in 1988 there was a Board presentation that focussed on a perceived need for privatisation and that raised the need for appropriate incentives for senior managers. Viable privatisation was the basis for the capital injections over the 1989-93 period and the form adopted for the company structure of 1990. Prospective privatisation of the core rail business led to the customer focus of 1989-1993, and sharpened (prospective) incentives for management. Throughout this period there was a struggle to get rail to the status of a viable business, and there were alternative views of its prospects.

  The choice of counterfactual must be influenced by these factors as well as the performance of companies owned by government. In reaching the choice of counterfactual, the following points were most influential.

1. Although cost reductions and a degree of modernisation had been achieved, the status quo from 1989 would not have been a viable business. Fixing the status quo as of this date would mean comparing the path that took place with a counterfactual of no railway.
2. The investment in electronic customer systems and the development of yield management (which had not reached maturity by 1992) over the period 1989-93 would have been necessary for rail survival.

3. The prospect of privatisation provided a (potentially rewarding) goal for management and probably brought necessary developments forward in time.
4. Given its markets, there is no reason why rail would have performed better under public ownership.
5. The decision to privatise together with the accompanying (potential) incentives would stimulate performance changes of themselves (Beesley and Littlechild, 1992:38).
6. The data of Orr (1981, 25) suggest that the business performance (working expenses/gross earnings) of rail improved under corporate and board structures, but that the longest period that it maintained the more efficient performance was 6 years, and more often it was two years before performance began to deteriorate.
7. While private ownership (with the incentives of share-ownership) is the best way to lock in gains made, when the decision to implement privatisation was finally taken in late 1992 the distinct possibility of private sector run-down of the railways was considered.

Counterfactual

There is no basis to pinpoint the extent to which NZ Rail, without the incentive of privatisation, would have attained the performance level of 1993 and beyond. However, even if it attained the 1993 level of performance, there is plenty of evidence that it would not maintain this level. These arguments suggest that two counterfactuals may be proposed:

- Break even from 1993, and
- Deterioration to break even point from the 1993 position after, say, 4 years.

In addition, the economic efficiency of the decision in 1988 to embark on the privatisation course of action, as opposed to shutting down rail, should be evaluated. This would entail incorporation of any externalities from the shutdown of railways.

13.2 Recommendations

The issues in defining a counterfactual are the same as in any study of this sort. The data for the completion of Stage 2 are assessed to be available, although work is required to assemble them and cast them in a useable form. The availability of data and relevant information is as comprehensive and detailed as could be anticipated. Confidentiality will be able to be preserved while presenting the results in an informative, but aggregative, manner.

It is recommended that stage 2 be conducted. The framework for stage 2 is indicated in the section (4.3.1) that sets out the approach to welfare analysis.

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