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**AIRPORT COMPANIES IN NEW ZEALAND :
PROBLEMS AND PROSPECTS**

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ABSTRACT:

New Zealand has 64 public and 138 private licensed aerodromes. Until 1 April 1988 24 of the public aerodromes were operated as joint ventures between central government (Crown) and the local territorial authority(ies). In June 1985 central government announced a policy to convert these joint venture airports into limited liability companies owned by the previous joint venture partners. As at 1 April 1988, 2 of the 3 international joint venture airports had been restructured as companies, with the remaining international and at least a further 6 provincial airports due to be corporatised during the current year.

This paper outlines the background to central government's policy for corporatising the joint venture airports; describes the process by which this has taken place; and identifies the predominant policy issues which have emerged.

DISCLAIMER:

The authors accept full responsibility for the contents of the paper, both in terms of factual accuracy and opinion. The opinions expressed are entirely those of the authors and should not be construed as representing the views of either authors associated organisation.



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INTRODUCTION

New Zealand has some 202 public or private aerodromes. Twenty four of these aerodromes have been operated as joint venture partnerships between the Crown and one or a number of territorial local authorities. The nature of the relationship is stipulated in a joint venture agreement between the parties. The relative size of the joint venture airports in financial terms and their locations are shown in Table 1 and Figure 1, respectively.

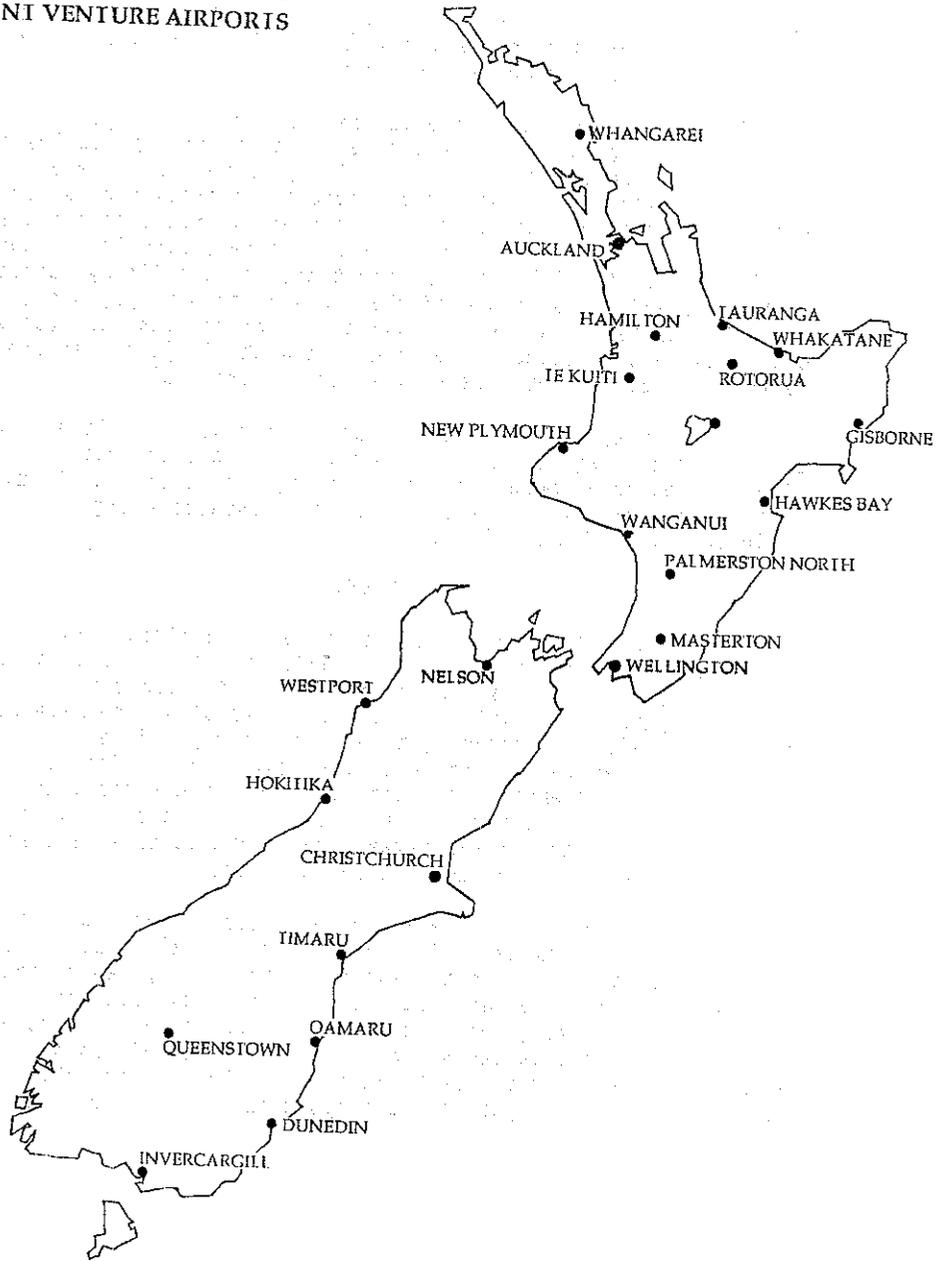
TABLE 1: JOINT VENTURE AIRPORTS: RELATIVE SIZE

Airport (In order of relative size)	Value of Fixed Assets ⁽¹⁾	
	Book Value (\$)	Assessed Current Value ⁽²⁾ (\$)
Auckland	76.10	350.00
Christchurch	28.02	82.25
Wellington	27.22	80.00
Nelson	8.56	14.73
Dunedin	1.89	13.59
Palmerston North	3.03	10.27
Invercargill	2.03	7.96
New Plymouth	1.68	6.89
Tauranga	1.25	6.89
Whangarei	0.74	4.17
Rotorua	1.34	4.50
Hamilton	2.46	3.90
Hawkes Bay	1.95	3.85
Queenstown	1.52	3.80
Hokitika	0.58	3.38
Gisborne	0.90	3.28
Timaru	0.47	2.70
Wanganui	0.60	2.57
Taupo	0.72	2.50
Whakatane	0.46	2.13
Oamaru	0.52	1.66
Masterton	0.49	1.09
Westport	0.21	0.90
Ie Kuiti	0.05	0.43

(1) Land, runway, buildings and other improvements

(2) Government valuation inflated to 1 April 1988, or separately assessed/negotiated valuation.

FIGURE 1: LOCATION OF NZ
JOINT VENTURE AIRPORTS



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The joint venture agreement defines operational and management responsibilities for the airport, as well as the financial involvement of each partner. The local authority's responsibilities extend to the day-to-day management of the airport. The Crown, until recently, has been responsible for the provision of certain airside facilities generally related to the operational safety. These included the provision of services such as local airways control, crash fire and environmental protection.

Over the last three years, the current Labour Government, which came to office in August 1984, has pursued a policy to replace the joint venture structures with limited liability companies. These companies are to act with normal commercial freedoms in areas such as price setting but retain some quasi local authority status in areas such as bylaws and forced acquisition of land. Shareholding is limited to the Crown, territorial local authorities, and the Airways Corporation of New Zealand. The nature of the legislation which allows these companies to be formed is permissive and for the past two years the Crown has been involved in negotiations with its joint venture partners to gain acceptance of the company proposal.

This paper backgrounds the Government's proposals; outlines the basis of the company negotiations, in particular the usefulness of financial/economic modelling in these negotiations; and, finally, identifies a number of the problems and prospects emerging from implementation of the policy.

BACKGROUND

Joint venture airports evolved over time. The first joint venture was established in Christchurch in 1955, the most recent in Taupo in 1971. They evolved as a result of a United Kingdom civil aviation mission (Tymms, 1948) which advocated, inter alia, the development of a domestic aviation infrastructure with clearly defined responsibilities for central and local government. The general arrangement under each joint venture agreement was that, while day to day management of the airport fell to the local authority, costs (and revenues) were shared 50/50 between the joint venture partners. Two notable exceptions were Auckland and Wellington.

In the case of Auckland, the Government adopted the view that the establishment of New Zealand's main international airport was a national rather than a local responsibility and agreed to make a grant-in-aid of 60 percent towards certain costs relating in the main to international services. Other capital costs, all maintenance costs and all revenue was shared on the usual 50/50 basis. The net effect of this was that, by 31 March 1987, 74 percent of the historic cost of capital employed in the airport had been contributed by the Crown.

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At Wellington, the costs were shared in the proportions two thirds - Crown: one third - Wellington City Council, because the Council, being the sole contributing local authority in the Wellington area, was unable to meet its full 50 percent share of the high costs of developing an airport at Rongotai.

A key feature of the joint venture system as it evolved was the retention within the airport accounts of surplus monies accruing from an excess of income over expenditure in the operation of airports. This occurred because no dividend was paid to the partners from accrued surpluses. In 1971 the Government agreed that its share of operating surpluses should be retained in the airport accounts and used on airport development. Henceforth expenditures from Crown monies held in joint venture airport accounts were authorised administratively without being appropriated by Parliament. At the same time provision was made for the introduction of a charge not exceeding \$4.00 on persons departing New Zealand and using facilities and services at the international airports, for the purpose of providing funds for the establishment, maintenance and operations of such facilities and services. A \$2.00 airport development charge was implemented and apportioned between the Crown and the three international airport local authority partners in accordance with the financial contribution from each partner. At Auckland the split of revenue from the charge was 80/20 between the Crown and local authority, at Wellington 67/33, and at Christchurch 50/50.

It was recognised that the system of keeping surplus revenues in dedicated accounts at each airport, and using the funds for the development of that airport, worked best if a balance existed between the generation of surplus funds and the need for funds for justified airport developments. Such a balance would not always occur. On the one hand, if development needs ran ahead of the generation of surpluses at a particular airport, additional funds would need to be injected. On the other hand, if surpluses ran ahead of the requirements for justified developments, surplus cash would accumulate in the airport accounts. The ready availability of such surpluses had the effect for some airport authorities of introducing a "spend or bust" mentality. The system of funding was therefore unstable.

To overcome this difficulty the Government in 1977 agreed that levies on the operators should be allocated between airport and airways dues in such a way as to avoid the accumulation of funds beyond a reasonable provision for operating costs, and a ten percent return on capital. This decision was implemented by Amendment No. 12 to the Civil Aviation Charges Regulations which introduced a differential system for apportioning revenue derived from airport dues to the international airports. It had the effect of increasing revenue from

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airport dues at Wellington and reducing the revenue from airport dues in Auckland and, to a further extent in Christchurch. Conversely, Auckland and Christchurch, respectively, made higher contributions to airways expenditure than Wellington so that the overall cost to operators remained the same.

Despite such modifications, difficulties with the joint venture system persisted. Problems with funding imbalances continued and cross-subsidies occurred, particularly between domestic airports, because of the formula used to derive landing dues. These charges were based on a fixed percentage (most recently five percent of gross operating revenues (GOR)). Non revenue operators, on the other hand, made little or no contribution to airport costs.

Difficulties were also recognised in the management of joint venture airports. While jointly funded airports managed by the local body may have had merit in the development phase of the airports, the arrangement proved to be increasingly redundant once the airports were established. Local body decision making structures for what were essentially commercial enterprises proved cumbersome. The inefficiencies of such decision making were further exacerbated by the overlay of central government bureaucratic and political controls on decisions involving capital expenditure. In introducing the airport company concept the Government summarised these difficulties as follows (MOT, 1985):

"The Crown and Local Authorities have substantial assets invested in airports and in the airways system with substantial further investment likely in the future on the basis of current policies. This infrastructure provides services to a number of major commercial entities such as Air New Zealand and other overseas and domestic airlines. The current approach lacks a clear commercial objective and does not provide autonomy for decision making at individual airports. It has led to a loss to the Government and Local Authorities from a lack of return on the funds invested and to a national cost through the inefficient use of resources."

With the change in Government in 1984 came a change in attitude towards the role of central and local government in commercial enterprises. The Government announced policies creating state owned enterprise (SOEs) to replace the trading components of government departments. The SOEs were modelled on limited liability companies, but with total Crown shareholding, to join similar institutions already in existence such as Air New Zealand. The SOE legislation was enacted in December 1986 and the first group of SOEs, which in the aviation section included the Airways Corporation of New Zealand, came into being on 1 April 1987.

Coinciding with these developments, the Government announced plans to corporatise joint venture airports, together with totally Crown owned airports. Discussion documents were released and seminars held in 1985 to convey the proposals to the local body partners, and in December 1986 legislation providing for airport companies to replace joint ventures was enacted. Because of the permissive nature of the legislation, considerable time and resources have been devoted to persuading in some cases reluctant local bodies to accept a less direct involvement in their local airport. This process encountered particular difficulties in the case of Auckland International Airport and required special legislation passed in December 1987.

At the time of writing two of the international airports, Auckland and Christchurch, had commenced operation as limited liability companies. Wellington, and a number of the provincial airports were at various stages of negotiation, with the likelihood that at least 6 of the provincial airports would be corporatised during the current year.

In conjunction with the corporatisation initiatives the Ministry of Transport commenced discussions with the joint venture airport authorities on the introduction of differential landing charges on an airport by airport basis. Regulations empowering the Minister of Civil Aviation to approve separately assessed charges for each joint venture airport came into effect on 1 April 1988. Company airports, on the other hand, are free to set their own charges.

COMPANY DISCUSSIONS

A key ingredient in discussing the company model with local authorities has been the development of a company financial model for each airport authority. While the complexity and data requirements differ from airport to airport, typically the approach has been to first discuss with the airport authorities the general philosophy behind the company approach, and agree on general assumptions concerning the future of the airport in terms of growth, capital expenditure, and relative changes in operating revenues and expenditure. Using the latest annual accounts for the airport, updated where possible by the current budget projections, a financial model specific to each airport is then created. The development and schematic nature of this model is discussed below and shown in Figure 2.

Financial Model

The primary purpose of the financial models is to evaluate the economic and financial viability of the airport businesses under corporate ownership.

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It was assumed initially that the owners before and after corporatisation would be the same, and therefore the question of value for sale was generally of less concern than ascribing a proper economic value to the business being transferred. Nevertheless, in the case of Christchurch International Airport the Crown's ownership share reduced from one half to a quarter by sale to the joint venture partner. Situations of 100 percent company ownership by the local authorities are likely to occur with provincial airports. In each of these cases the valuation derived from the financial modelling is an important component in determining the final sale price of the Crown's share of the airport being sold to the company.

As the corporatisation process proceeded use of the models focussed more on the valuation aspects than on the long term economic and financial viability questions. However, determining both the valuation and the financial/economic viability required the following to be established:

- (a) Revenue and cost forecasts.
- (b) Growth and capacity forecasts.
- (c) Capital expenditure forecasts.
- (d) Financing ratios, e.g. debt/equity.
- (e) Cash flow forecasts.

FIGURE 2: COMPANY FINANCIAL MODEL

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Trading
Forecasts

ASSUMPTIONS CONTINUED:		(\$000's)	3/89	
CAPITAL EXPENDITURES :		O/SAL	ADDITIONS	
REVENUE	BASE MODEL	Land	131,912	6,000
INFLATION - annual		Runways	98,426	7,140
INFLATION - cumulative		Domestic term	21,309	100
GROWTH: Airport Dues-Domestic		Intl Term	65,956	7,500
-intl		Rented/Leased	27,397	5,500
Airport development charge (1989-93)		Plant & Equip	3,843	3,435
General Services		F & F, M V	2,127	1,620
Rental & Leased (Rev V)		CIP Runways		
Domestic terminal		CIP Domestic 1		
International terminal		CIP Domestic 2		
EXPENDITURE		CIP Intl 1		
INFLATION - annual		CIP Intl 2		
INFLATION - cumulative		CIP TRFEE TO BLOC		
GROWTH: Airfield		TOTAL	350,970	31,295
General Services		Total new addition	562,830	
Rented/Leased (Rev V)		Proportion of CIP financed by Debt	50%	
Domestic terminal		DEBT / EQUITY RATIO (ON OPERING ASSE	402%	60%
International terminal		EQUITY CAPITAL INJECTION	210,382	
INTEREST PREMIUM (on Inflation) - Borrowing		TERM LOAN OBLIGATIONS :	# 1 160,388	140,388
Cash Surplus		# 2 30,000		30,000
FIXED ASSET PURCHASES - Inflation factor		# 3 27,000		
Premium over Inflation		# 4 43,000		
Total Increase		# 5 60,000		
Cumulative Increase		# 6 51,000		
TAXATION		# 7 31,000		
DIVIDEND (of Tax Paid Profit)		# 8 70,000		
		# 9 150,000		
		# 10 97,000		
		TOTAL LOANS RAISED		170,388
		term in terms of loans -->	20	Repayments FOUNC
		DEPRECIATION TABLE		REVALL
				# OF YEARS =
		LAND		W/L
		RUNWAYS		15.00
		BUILDINGS & RESERVOIR		33.33
		PLANT & EQUIPMENT		
		FIXTURES, FITTINGS & MOTOR VEHICLES		
		OPENING BALANCE SHEET		
		Cash		0 Current liabilities
		Current assets	7,234	7,234 Taxation
				term liabilities(see)

Capital Transactions

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	3/99	3/99
BALANCE SHEET		
FIXED ASSETS	372,297	372,297
FIXED ASSETS NET BOOK VALUE		
CONSTRUCTION IN PROGRESS		
CURRENCY ADJUST:		
Bank	358	358
Other	6,232	6,232
TOTAL CURRENT ASSETS	6,590	6,590
TOTAL ASSETS	380,000	380,000
LIABILITIES		
Bank	2,787	2,787
Accruals	170,300	170,300
Provision for Dividend		
TOTAL LIABILITIES	173,087	173,087
SHAREHOLDERS' EQUITY:		
Capital Reserve	210,582	210,582
Accumulated Retained Earnings	67,800	67,800
TOTAL EQUITY	280,712	280,712
TOTAL FUNDS EMPLOYED	390,000	390,000
REVIEW ON:		
Total Assets (IMB17/Av for Assets) before Rev	5.22	5.22
Total Assets (IMB17/Av for Assets) after Rev	5.22	5.22
Total Equity (IMB17/Av Equity) before Revaluat	1.52	1.52
Total Equity (IMB17/Av Equity) after Revaluat	1.52	1.52
5 Year Weighted Average ROE on equity - before Rev	-1.42	-1.42
5 Year Weighted Average ROE on equity - after Rev	54.51	54.51

	3/99
CASH FLOW STATEMENT	
RECEIPTS:	
Airport Development Charge	20,026
General Services	4,564
Dom & Int Terminals	2,151
Revenue from	
Capital Injections	30,000
Term Borrowings	95
Interest	87,801
TOTAL RECEIPTS	25,445
PAYMENTS:	
Costs	22,150
Interest cap	0
Dividends	60
Capital Expenditure	33,779
Change in Working Capital	2,442
TOTAL PAYMENTS	87,443
NET CASH FLOW	358
Operating Balance	0
CLOSING BALANCE	358

	3/99
NET FUNDING STATEMENT	
TOTAL CASH	358
CASH FLOW	1,403
TERM BORROWINGS	(140,300)
DEBT REPAYMENTS	(27,000)
LOW REPAYMENTS	22,150
INTEREST TERM	0
CAPITAL INJECTED	6,590
TAX EFFECT TERM INTEREST	0
DCF CASH FLOW	(210,582)
DCF CASH FLOW CONSTANT \$	(6,203)
DCF CASH FLOW CONSTANT \$	(12,743)
DCF CASH FLOW CONSTANT \$	(1,903)
RESIDUAL VALUES MARCH 2003	1,878,003
WACC 8.2%	
NPV CONSTANT \$'s	(1,271)
NPV 8.2%	6,972
EQUITY	
CASH FLOW	358
INTEREST CURRENT (WACC OF TAX)	(669)
CAPITAL INJECTED	0
DCF CASH FLOW	289
DCF CASH FLOW CONSTANT \$	1,582
DCF CASH FLOW CONSTANT \$	268
DCF CASH FLOW CONSTANT \$	1,190
RESIDUAL VALUES MARCH 2003	1,352,205
EM EQUITY CONSTANT \$'s	6,214

	3/99	BUDGET
PROFIT & LOSS		
REVENUE:		
Airport Development Charge	20,026	20,026
General Services	4,564	4,564
Domestic Terminals	2,151	2,151
International Terminals	15,420	15,420
Revenue from	0	0
Interest	87,801	87,801
TOTAL REVENUE	127,962	127,962
EXPENDITURE:		
Airfield - costs	1,278	1,278
General Services - costs	11,855	11,855
Domestic Terminals - costs	161	161
International Terminals - costs	1,375	1,375
Revenue from	3,200	3,200
Interest cap	0	0
Interest	22,150	22,150
(Less) Interest Capitalised to CIP	19,613	19,613
TOTAL EXPENDITURE	35,829	35,829
NET PROFIT BEFORE TAX	92,133	92,133
Less: Taxation	606	606
NET PROFIT AFTER TAX	91,527	91,527
PLUS REVALUATIONS		
(LESS) DEPRECIATION ON REVALUATIONS	0	0
NET PROFIT AFTER TAX AND REVALUATIONS	91,527	91,527
RETAINED EARNINGS ANNUAL		
TO REVALUATION RESERVE	0	0
TO RETAINED EARNINGS	0	0
TOTAL APPROPRIATIONS	0	0

A particular problem in attempting to derive the above forecasts resulted from the fact that much of recent airport policy in New Zealand has been influenced by national policy considerations (e.g. uniform pricing) rather than specific policy associated with the operation and development of individual airports.

Policies adopted often tended to be aimed at meeting social objectives rather than commercial criteria. This confusion of objectives is similar to that which occurs in other trading activities within the Government sector. One problem created by this was the need to change the thinking of those managing the airports towards commercial rates of return rather than providing sufficient facilities to meet any demand placed on the airport irrespective of price considerations. The valuation process therefore was heavily weighted towards commercial reality as well as the need to ensure that whatever performance criteria were adopted were consistent with those being used by SOEs and the private sector.

A further distortion occurred in recent years as a result of the difficulties of obtaining realistic approvals of capital expenditure. In the case of some airports necessary expenditures were delayed because of Government policy or differences in views between the joint venture partners on the need for such expenditures. In other cases, expenditures were made not so much for commercial reasons but because funds that were available could only be spent on airport development.

Model Development

When considering the process through which the model was developed it is important to keep in mind that the model is only the tool not the answer. Therefore if in the end the model produces a number which becomes the agreed valuation it is not just a consequence of the "mathematical calculations" completed within the model, but rather is the result of many judgments which had to be made to produce the final analysis.

The following description, largely based on our experiences in the case of Auckland International Airport, is an attempt to set out in logical form how the model developed. In practice the order of completion was quite different. For example, "a quick and dirty" evaluation was often required at an early stage to provide assurance that corporatisation was achievable in normal economic and financial terms. Once the process started, development occurred on several fronts. There was no simple direct route from start to finish. Consequently the basic model provided the background to confirm projections whilst later on, as greater detail became available, the sophistication of the model was improved to reflect actual trading realities.

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The reason for this process was quite simple - we were dealing in a practical rather than a theoretical environment. Decisions regarding corporatisation were therefore constantly being made as the consultative process evolved. These decisions required the latest information, even if the total picture was not available at the time.

Development of the models involved several stages.

Stage 1

The first stage was to develop a framework under which the airport companies would operate. Corporatisation assumes that the airports are driven totally by commercial objectives. It was therefore necessary to determine what these objectives might be. In the case of Auckland International Airport the interim report of the Auckland Airport Board (AAB, 1987), appointed by the Crown to advise on a company structure to replace the joint venture, set out a statement of corporate intent for the proposed company. Whilst this included a general statement of company objectives and the nature and scope of activities, in addition it set out some initial performance targets for the company. Amongst the targets were the following:

- (a) ratio of net profits, before interest and tax, to total assets;
- (b) ratio of net profits after tax to shareholders funds;
- (c) ratio of shareholders funds to total assets (gearing);
- (d) internal rates of return on total assets and shareholders funds; and
- (e) dividend policy.

In developing these targets recognition was given to rates generally obtainable in the market place, including prudent financing ratios as well as rates sought for SOEs. Whilst it is important to recognise the relationship between risk and gearing (Modigliani and Miller, 1958 & 1963) the weighted average cost of capital is likely to be relatively constant over the "normal" range of gearing levels. Outside this a slightly higher or lower cost will result. In the case of the airport models it was assumed that the gearing would be normal for this type of business and would not unduly affect financial risk and therefore the weighted average cost of capital. The Board also had access to preliminary work completed on financial forecasts for the Airport operations.

Stage 2

The second stage was to establish financial forecasts, using as a starting point the recent trading results, together with budget forecasts for the forthcoming year. Because of the considerable elapsed time over which the negotiating process occurred, these figures were periodically updated. Each element of the forecasts had problems.

(a) Revenue

Revenue forecasts were required for both growth in real terms and inflation effects. Individual growth rates were taken for each major element of revenue, for example, domestic versus international services, rentals and concessions. In recent years forecasts of passenger and aircraft numbers had been made for various purposes and these were compared with actual results. Forecasts of growth took into account both general changes in the economy as well as forecasted specific changes in air travel, particularly as they impacted on each airport.

Inflation on the other hand is recognised through the pricing mechanism. For the sake of producing a coherent set of figures the base models presume that prices would be maintained in real terms and therefore individual prices would increase by the rate of inflation. As part of the sensitivity review process however a series of alternative scenarios were also considered, including a reduction in real charges over the period of the model. It was also recognised that prices might be adjusted intermittently rather than in each year. In the latter case the impact on the model was not significant provided total price increases over the long term were consistent with the original assumptions.

In the case of Auckland a specific alternative pricing mechanism was used for rented properties. This pricing mechanism reflected the generally accepted returns likely on such property. Real investment by the company in such property was matched with real increases in rental income.

As a starting point the existing charges for airport dues were assumed to be the base. For Auckland and Christchurch an adjustment was made to recognise the need to have a departure charge on international passengers of \$10.00 per passenger. Later, when it became apparent that rescue fire would become a responsibility of the airport a corresponding increase in revenue was also included. This varied from airport to airport

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The need to make such assumptions and adjustments did highlight the need for a more detailed pricing review for airports which will inevitably result in changes to price structures. Overall, however, it was considered that the pricing policy assumed in the models would reflect the capacity of the airports to generate revenue in the future.

(b) Costs

As with revenue forecasts, cost forecasts were made assuming both real growth in costs and the effect of inflation on prices. Costs were assumed to move with inflation, adjusted by changes in activity appropriate to the various parts of the business. Additional costs of interest, rescue fire and overheads associated with the new independent corporate structure were included in the cost forecasts. On the other hand, no allowance was made for potential cost savings due to management efficiencies under the new corporate structure. In general it was considered that for operating expenses savings would not be significant and would only be determined once the companies were up and running.

A substantial increase in interest costs arises through new borrowings. The exact quantum of interest is determined by the model based on assumed interest rates and the forecast borrowing requirements.

Depreciation was calculated by the computer model programme, applying tax and book depreciation rates to the opening asset values plus capital expenditures. Where there were significant increases in valuations from previous book values this resulted in major increases in the depreciation charge.

(c) Capital Expenditures

Future capital expenditures were derived from a review of anticipated developments, including those proposed in individual airport masterplans. These expenditures were reviewed to ensure that the capacities of both runways and terminals would be adequate to meet future growth patterns.

(d) Residual Value

The models cover a 15 year period therefore it was necessary to derive a residual value. A number of options were considered, for example, adopting of revalued book value at the end of the 15 year period, extending the model for a further period of time, or applying a capitalisation rate to final period cash flows.

The last method assumes that cash flows in the final period reflect cash flows obtainable from a basically stable trading situation. This was the approach adopted in the financial model for the international airports. In each case it was necessary to review the forecasted model to ensure that firstly, major capital expenditures were not required in that year to meet anticipated capacity requirements, or secondly that there was not significant unutilised capacity which meant that cash flows were understated. A factor of 12.5 times the final year's cash flow was adopted as the formula for determining residual value.

In the case of provincial airports initially a revalued book value approach was adopted because of the greater fluctuation in capital expenditure patterns and consequent impact on cash flows. Subsequently this was modified to the same basis as for the international airports both in the interests of consistency and to reduce the impact of inflation on residual values.

Stage 3

The third stage in establishing the financial forecasts was to incorporate in the model the opening asset and liability values. A best guess estimate was made of anticipated assets other than fixed assets, for example, cash, inventory and debts, and on the liabilities side, sundry and trade creditors.

Opening fixed asset values posed more of a problem. Adoption of any value in itself suggested a predetermined outcome which the model itself was designed to predict. It was necessary however to include some value for fixed assets as this had an impact on depreciation and therefore taxation rates. As a general starting point therefore, the latest Government valuations were adopted in the base model. Throughout the period of model building and negotiations these values were updated as better information became available. The model was finally run with values agreed to with the local authority partner to ensure that operating objectives were attainable.

Stage 4

The final stage was one of determining sensitivities. The sensitivity analysis included alternative pricing policies, for example, decreases in real prices, alternative growth forecasts for revenue components as well as costs, and differing capital expenditures, particularly with respect to timings of runway and terminal expansions. In each scenario it was necessary to ensure that operating capacities were realistic over the 15 year period.

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In practice a continuous sensitivity analysis was undertaken over the 2 years in which the Auckland Airport corporatisation discussions took place. The running of various alternatives provided additional information for updating the model and ensuring that all factors likely to affect the valuation had been properly taken into account.

Verification

Having established a model which provided not only an outline of operating results for a 15 year period but suggested an opening valuation, it was necessary to introduce an independent check on the values adopted.

The initial alternative valuation considered was an updated Government valuation. Whilst this value could be readily obtained there was considerable difficulty in using the estimate derived. This occurred for a number of reasons, not the least being the difficulty in obtaining information on ownership of the land. The nature of the joint venture, being a partnership between local authorities and the Crown, resulted in a lack of definition of ownership of land associated with the airports. In many cases there were no reliable records of land ownership and no clear separation of ownership in the case of land improvements. For this reason an independent registered valuers valuation was attempted.

The independent valuations were completed on the basis of a range of valuation alternatives including depreciated replacement cost, alternative use, and economic value based on the earnings potential of the airport. In general these values confirmed the valuations finally adopted in the financial models.

A long run marginal costing review was also undertaken to ensure that the valuations were appropriate.

Finally, in the case of Auckland International Airport, a concurrent but independent review of capital expenditure requirements for the airport was available before a final value for the Airport was determined (KRTA/Airplan, 1988). This review was used to ensure that the estimates used in the modelling were correct and that the timing of expenditure was also appropriate.

The Model Itself

The model is an attempt to incorporate all aspects of forecasting the likely operations of an airport including:

- (a) financial forecasts of trading, cash flow and investment;

- (b) accounting objectives; and
- (c) rates of return and net present value objectives.

Therefore, as illustrated in Figure 2, because the model is a fully integrated set of forecasts it was possible to evaluate economic returns whilst measuring accounting returns over a 15 year period. The ability to undertake such analysis is important as the economic return is essentially based on evaluating cash flows whilst the accounting model takes into account accruals and traditional accounting conventions.

The two most acceptable methods of project/business evaluation involve net present value (NPV) and internal rate of return (IRR) concepts. In certain circumstances IRR is unreliable (Brealey and Myers, 1984), however for the airport financial models both returns were calculated.

While there is considerable discussion in corporate financing literature on how to determine the cost of capital, it is generally accepted that the capital asset pricing model (CAPM) provides an appropriate framework for this purpose.

A difficulty with this method however is the lack of New Zealand market data. This is particularly so with special industries, such as airports, and is a problem common to all SOEs. The most authoritative analysis was completed by Jarden & Co in the early 1980s (Baines, 1984). From this analysis a bench mark return on total assets before interest, but after tax, of 7 percent real was decided on as appropriate for the airports.

Accounting returns, on the other hand, varied over the 15 year period. The aim was to ensure that returns acceptable to companies in general were obtained. In the case of Christchurch International Airport it was agreed that for the first three years the returns obtained would be less than normally accepted in order to reflect a transition period from the joint venture operation to the commercial operation.

As can be seen by the preceding description, development of the model represented an evolutionary process with the model being refined as better information became available and as the impact of various variables on profitability was revealed. A good example of the impact of changing assumptions is the use of alternative projections on growth. Profitability was substantially altered by the adoption of high, medium or low growth rates. During the modelling process it was found however that whilst the high growth model would produce a higher profit, achieving this profit level required greatly increased capital expenditure, both in terms of value and timing. Economic

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returns were therefore reduced and in fact were comparable to medium and low forecasts. The difference which remained between the various models was substantially accounted for by the benefits obtained through increasing utilisation of the runways and in some cases terminals.

Comment

The financial model format has proved useful in a number of respects. First, it provides a comprehensive statement of the proposed company's financial position, both on establishment and into the foreseeable future. The assumptions such as inflation, growth, cost of capital, etc, are explicit and are either supplied by or agreed in advance with the airport authority. Similarly, the financial accounting information is taken straight from the airport authority's accounting statements and reflects the classification of revenues, expenditure, assets and liabilities used by the airport authority. From the financial model the policy assumptions regarding company gearing, dividends, future capital investment and expected commercial return on assets are also clearly shown.

A second important feature of the model is the ability to examine any number of "what if" scenarios. In developing the model with each airport authority emphasis is placed on the need to isolate the key policy questions. We endeavour to minimise debate on assumptions in the model by identifying those assumptions which are contentions and then examine their significance on a "what if" basis. Through this approach it is possible to look at the impact of each assumption on the total company performance so that debate can be focused on those assumptions which are critical, such as airport growth.

Channelling early negotiations into a "what if" analysis also avoids the necessity for either party to adopt an uncompromising position on what initially appears to be an important issue without the benefit of a more comprehensive evaluation

Third, the model makes very explicit the assumed "commercial" performance target for the company, namely, a real internal rate of return (IRR) of seven percent. Where the target rate is not achieved, the necessary additional income required to achieve seven percent IRR is calculated. Alternatively, opening asset values can be adjusted based on the negative net present value (NPV) of the projected income stream of the company. Conversely, where the projected IRR exceeds seven percent the resulting positive NPV suggests an earnings based premium that should be placed on the assumed opening value of assets in order to assess their true "market" value. The same analysis can be undertaken with any other assumed target IRR.

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Fourth, the model, while based on a long term (15 year) analysis, lends itself readily to a short term analysis. For example, by changing the assumptions for capital and other operating expenditure in relation to forecast growth patterns at each airport it is possible to identify the avoidability of particular costs in relation to particular users and/or aircraft types. One application of this was in determining the impact of early closure of the Queenstown Airport at Frankton as a consequence of relocating the airport further south.

Finally, adopting the same model format for each airport while at the same time building in the accounting terminology unique to each airport achieves consistency in approach but in a form familiar to the airport authority in question. The model is therefore a working tool from both the Crown and local authority points of view. From the Crown point of view, in particular, a consistent basis for asset valuation and commercial return can be established so that whether operating as companies or joint ventures the airport authorities can be assessed on the same basis. This approach has been applied, for example, in determining the basis for differential charges for joint venture airports.

POLICY ISSUES

The guiding principle behind the move to corporatise New Zealand's joint venture airports is the introduction of a commercial approach to the operation of these airports. A key element in this is comparability with private sector performance, namely, that airports should face a similar operating environment to that they would face if they were privately owned.

Aspects of this operating environment include:

- (a) An average return on resources no less than the average earned elsewhere in the economy.
- (b) Freedom to manage resources on a commercial basis without introducing political considerations.
- (c) Management accountability on commercial grounds.
- (d) A competitively neutral capital structure, neither better nor worse than for comparable private enterprise.

Within this broad policy framework the general approach has been to establish a basis for incorporation which is consistent with the general approach, while catering for the peculiar requirements of each airport authority. A number of the policy issues which have emerged from the exercise are discussed below.

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Airport Valuation

The main area of debate is the value to be placed on joint venture airport assets on sale to the newly formed company. Negotiations in this area have an added dimension because of the joint interests of the parties - both as owners of the existing assets, and shareholders in the company purchasing the assets. The situation is not simply one of a "willing buyer, willing seller". At times it is confusing just who is buying and who is selling and whether in fact the parties are willing! An added complication is that land at the airport may have been purchased under a compulsory sale. Therefore, while it can be sold to the company provided it continues to be used for aeronautical services, it must be offered back to the original owners once it is no longer required for aeronautical purposes.

Properly valued, airport land and improvements should be assessed at a market price which reflects the earnings potential of the assets, either used in the business of an airport or in their best alternative use. For the more profitable airports (e.g. Auckland, Queenstown) an airport activity may be the best use the land in question can be put to. For a number of the joint venture airports, however, a better alternative may be available. A market value reflecting this use is therefore appropriate.

Balanced against the need to determine a market value for airport land and improvements has been a policy commitment to retain provincial joint venture airports. Applying a true market value as a price determinant for the airport could frustrate this objective. For example, Table 2, (an extract from the Ministry of Transport's discussion paper on differential charging (MOT, 1988)), shows the current performance of the 21 provincial airports (excluding the international's: Auckland, Wellington and Christchurch) based on revalued assets and existing returns against that required to meet the seven percent IRR target. Only 4 of the airports achieve a positive return on revalued assets*. The remainder show negative IRRs; some in excess of -150 percent. The order of revenue increase required therefore to achieve a commercial return is arguably prohibitive.

(9)

* In most cases the valuations are based on the latest available Government valuation, updated by actual and estimated inflation to 1 April 1988. In the case of a number of the airport authorities (shown with an asterisk) better market valuations will or have emerged from company negotiations.

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The approach so far has been to determine an "as designated" value for each airport. Where the "as designated" value on current revenues is less than the "alternative use" valuation, attention is given to the possibility of increasing revenues from all sources to achieve the higher valuation. A number of the airports unfortunately have no other source of revenue other than from aeronautical charges. A major increase in these charges, combined with increases in airways dues currently being promulgated by the Airways Corporation, therefore could jeopardise the future of such airports.

TABLE 2 : ADDITIONAL INCOME REQUIREMENTS

Airport	Existing IRR (%)	Additional Income Required For 7% IRR	
		(%)	(\$)
Dunedin*	-22.97	79.00	1 190,827
Gisborne	-24.46	107.20	323 594
Hamilton*	6.59	3.10	19,305
Hawkes Bay	3.87	29.30	182 547
Invercargill	-13.12	315.50	306,160
Invercargill	-199.32	200.40	1 428,491
Masterton	-181.32	331.00	104 491
Nelson	-14.66	212.80	1,692 451
New Plymouth	-87.17	118.70	513,889
Oamaru	-186.26	323.50	165,856
Palmerston North*	2.55	45.50	366,529
Queenstown*	13.75	0.00	0
Rotorua*	-0.71	36.40	330,748
Taupo	-34.95	322.00	252,526
Tautanga*	-4.09	105.30	430,303
Te Kuiti	-193.28	748.50	46,321
Timaru	-185.24	202.70	289 288
Wanganui	-42.06	159.00	233 512
Westport	-193.62	157.40	99 466
Whakatane	-11.67	164.80	200 556
Whangarei	-18.00	207.30	400,084
AVERAGE/TOTAL	-66.01	184.26	8,576,944

Shareholding

An important Government objective in corporatising joint venture airports is to remove direct local and central government involvement in the management of airport resources. To achieve this, a distinction is drawn between commercial and political objectives; with the directors and management having prime responsibility to meet commercial objectives. Two potential avenues for political influence remain. The first is by explicitly compensating the company for social services provided by the company. The level of compensation being sufficient to achieve a commercial return on the service from the company's perspective. A second possible avenue for influence is through shareholding. The appointment of directors provides an opportunity for shareholder influence, however there are pitfalls in exercising such influence.

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First, there is a political penalty in attempting to influence directors away from a strictly commercial consideration; particularly if such pressure becomes publicly known. Second, it becomes difficult to preserve the quality of directors appointed to the company if there is too much shareholder interference. Third, the benefits of transparency and accountability are lost once confusion between political and commercial considerations is introduced. As a means of political influence therefore shareholding has its limitations, particularly from the Crown's perspective.

The primary benefits of shareholding for the Crown therefore derive from the equity interest in the company. To preserve its position the Crown must therefore retain sufficient shareholding to ensure the airport performs to an adequate standard. In a practical sense this means at least a 50 percent shareholding. The loss of control associated with a shareholding below 50 percent does not justify a continuing equity interest from the Crown's point of view. An exception occurred in the case of Christchurch, however the Crown is now opting for either a 50 percent shareholding or none at all.

Monitoring

Currently the airport authorities legislation restricts shareholding in airport companies to the Crown, local authority(ies), and the Airways Corporation of New Zealand. The philosophy behind this restriction was to retain community control over important and potentially monopolistic regional entities. Removing airport companies from share market trading however removes the discipline of this market over the operations of the company (Treasury, 1987). Artificial controls in the form of monitoring and more comprehensive reporting to shareholders provide only poor substitutes for the normal market mechanisms.

In contrast to SOEs, the airport companies legislation makes no provision for formal reporting requirements between the company directors and shareholders. The companies are obliged to have their accounts audited by the Government Audit Office, and to submit these together with an annual report to the Minister of Civil Aviation for tabling in Parliament. The SOE legislation goes further however by including a section (Part III) devoted to accountability, including the requirements for an annual statement of corporate intent. This statement serves as a formal agreement between the company and shareholder (the Crown) on the company's objectives, activities, accounting policies, performance targets, etc, over a three year period.

Whether a similar document emerges in the course of establishing airport companies depends very much on the circumstances under which each company is formed. A number of local authorities have proposed such a document as part of the establishment deed for a company but

no real continuing obligation to prepare the statement is placed on the parties. In the meantime the statements serve as a form of recognition that the airports will perform a responsible, albeit commercial, community function, rather than act as the unbridled commercial beast often put forward by opponents as the natural consequence of airport corporatisation.

While limitations on ownership limit the effectiveness of shareholder monitoring, a degree of market discipline is introduced in the form of external debt financing. A true market assessment of corporate viability is to some extent diminished by the implied guarantee through Crown and local authority shareholding, nevertheless the need to justify the company's performance to external financiers brings with it an added discipline to investment analysis. Furthermore, the burden of external finance costs reinforces the need to consider the opportunity cost of capital in investment analysis. While equity capital in the form of retained earnings may continue to be regarded as having a low opportunity cost while public ownership persists, the fact that external borrowings will be required to fund major investment is a reality the airport companies will find hard to ignore.

Subsidiary Relationships

In some instances, for example, where there are a number of small general aviation aerodromes in close proximity to a larger joint venture aerodrome, there could be merit in combining the airports in a principal and subsidiary relationship. Examples in this respect are Auckland and Queenstown. In the case of Auckland, the close proximity of Ardmore provides a possible diversionary airport for general aviation which would extend the capacity of existing airport facilities at Auckland for jet aircraft. Queenstown in association with Wanaka and Milford aerodromes, on the other hand, provides a useful tourist circuit in the southern lakes district of New Zealand.

Unfortunately the opportunity for such rationalisation is limited under the current legislation because of the shareholding restriction. Any subsidiary companies will not have the quasi local authority status provided for in the Airport Authorities (Amendment) Act 1986. Where the subsidiary companies are well established with no need for bylaw powers or compulsory land acquisition this may not be a problem. The aerodromes could just be public or private aerodromes owned and run by a company (examples of which already exist such as Mt Cook and Glen Tanner) rather than airport companies within the context of the Airport Authorities (Amendment) Act 1986, where land acquisition is still required, however, the only amalgamation possible in terms of the legislation is to have one company with with one or more minor aerodromes as part of its assets.

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Competitive Behaviour

From the outset there was a concern that without appropriate controls each airport company could act in such a way as to abuse its local monopoly position. Of particular concern in this respect was the opportunity to set landing charges independent of Ministerial approval*.

Three constraints on the companies' behaviour exist in practice.

First, there is the Commerce Act 1986 which provides a legislative control over the behaviour of airport companies and existing joint venture airports. No action on landing charges has been taken as yet under the Commerce Act, although its influence on the behaviour of airport authorities was recently demonstrated in Auckland when the Court ruled that the Airport was a market and that exclusive concession agreements with rental car companies constituted a restrictive practice in terms of the Act. As a result of this precedent the Airport Authority introduced for a trial period three duty free concessions to replace the previous one concessionaire. More recently, the new company in Christchurch also decided to allow a further car rental concession because of similar considerations.

A second constraint is provided by section 5(2) of the Airport Authorities (Amendment) Act 1986. This section obliges the airport company to consult with users before introducing new charges. The real significance of this section has yet to be tested, however it raises the prospect of review proceedings if the companies do not give due attention to consultation. At the very least it suggests an obligation for the companies to adequately brief users on the basis for proposed charges and to be receptive to constructive comment on their justification.

Third, for many of the domestic provincial airports in particular, there is potential for competition between the airports. Excessive charges by one airport company could jeopardise the demand for that airport and divert traffic to other airports closely situated. The Bay of Plenty region in New Zealand provides a good example of this

* As noted earlier, airport companies are free to set their own charges. Joint venture airports are now also able to determine their own charges but require the Minister of Civil Aviation's approval before these can be implemented.

possibility. Three airports (Rotorua, Tauranga and Whakatane) are within one hour's drive of each other. Any sizeable differential in the relative aeronautical charges between these airports could influence demand for these airports.

Price competition however is not as significant a determinant for the international airports. For these airports service competition is potentially a more critical determinant of performance. This may occur both in the international sphere, with the development of regional hub airports, for example Sydney versus Auckland, and to a lesser degree in the domestic sphere in the sense of preferred international gateways. Service aspects such as facilitation processing time (now significantly improved at Auckland), security, airline servicing, and user facilities, are likely to have considerable influence on demand for the international airport.

Poor Performers

The emphasis to date in corporatising New Zealand's joint venture airports has necessarily focussed on the major international airports, followed by the more viable provincial airports. Reference back to Table 2 indicates the extent to which a number of the smaller provincial airports are already struggling to achieve a commercial return. These airports pose a significant problem for corporatisation.

Pursuing the policy of corporatisation with such airports may prove to be a futile task. At the very least it could lead to many months of negotiation with the local authority involving time and resources way out of proportion to the significance of the airports in terms of corporate restructuring. An example of the 80:20 principle.

A decision on what to do with these airports has yet to be made. To some extent the decision might be pre-empted by the introduction of differential aerodrome charges and the effect this has on demand for the airports. It is difficult to imagine however that the policy of joint venture airport corporatisation would be well served by insisting that such airport become companies. Combined with differential charging, a more realistic proposition might be for the Crown to sell or gift its interest in these airport to the local authority in return for having no further obligation to fund operating deficits or capital expenditure.

Airport/Airways Interface

A final emerging policy issue of some significance is the interface between the newly formed airport companies and the Airways Corporation of New Zealand. There is a need for both parties to co-exist and co-operate generally in the aviation environment and specifically in the airport environment. Parts of the Airways

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Corporation's services, particularly those impacting on airports, are contestable however and could be provided alternatively by either the airport company or another party meeting standards set by the Director of Civil Aviation.

Rescue fire services previously provided by the Airways Corporation became the responsibility of aerodrome licensees from 1 April 1988 and already a number of airport authorities have contracted out the service to parties other than the Airways Corporation.

Further contestable Airways activities such as local aerodrome control have yet to be charged to the airport authorities. When this occurs the airport authorities, and companies in particular, will need to consider whether such services are better performed by the airport company or through a separate contract. The specialist nature of those contestable services places the Airways Corporation in a strong position to compete for the contract. However, as evidenced in the rescue fire situation, other parties are capable of providing the services and such options should be pursued if it is in the competitive interests of the airport authority. For a number of smaller airports in particular there would appear to be little justification for a strict delineation of tasks between, say, rescue fire, security, and maintenance, and greater flexibility should be available to the airport authority in a renegotiated contract which is not based on earlier precedents.

CONCLUSION

In this paper we have endeavoured to outline the basis of the New Zealand Government's policy to corporatise joint venture airports. This has involved extensive consultation and negotiation with the Crown's local body partners in these airports. Central to these discussions has been the development of a financial model as a focal point for negotiations.

The financial model has proved to be a very practical policy tool in this respect. The mathematical and accounting relationships in the model although complex, are generally accepted, and significant policy assumptions are clearly identified. By focusing debate on those assumptions negotiations between the Crown and local authorities have concentrated on the key policy questions, the most significant of which, not surprisingly, involve asset valuation.

In the course of establishing airport companies a number of policy issues have emerged, namely:

- (a) the basis for airport valuation;
- (b) public versus private shareholding;

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- (c) effective monitoring of company performance;
- (d) subsidiary company relationships;
- (e) competitive behaviour;
- (f) poor performers; and
- (g) the airport/airways interface.

These issues are briefly considered in the concluding sections of the paper.

Despite difficulties in implementing the Government's corporatisation policy, in our view there is little doubt that the initiative is long overdue. The joint venture airport structures served a useful purpose when first established but over the years they have become outdated. In their place the new company structures provide an institutional upgrading which complements other developments in the aviation industry and elsewhere in the economy.

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