

Monitoring of Mass Transit Systems

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EXECUTIVE SUMMARY

1. The mass transit systems under study include those of New York, Los Angeles, London, Paris, Toronto, Tokyo, Osaka, Singapore and Seoul. These systems are owned and managed either by the government or public corporation. These governments provide financial support to the operators and regard rail services as social benefit. In the future, these governments are unlikely to change the existing systems in order to maintain the service quality. Hence, their experience may not be directly applicable to Hong Kong.
2. Fares are controlled by the respective authorities. In determining the fares, the governments consider mainly the economic situation, the percentage of increase and the financial status of the operators. In recent years, the percentage of fare increase in the surveyed cities is at least in line with the inflation rate to ensure adequate funding of the operating expenses.
3. Apart from Hong Kong, London and Singapore, other operators receive grants and/or subsidies from the respective authorities to finance their operating costs. However, these governments have been reducing their assistance.
4. Most cities adopt the distance-based fare system, rather than the flat fare approach. In terms of ridership, Hong Kong, Singapore and Seoul have performed better than the rest, partly brought about by their increasingly active economies. Further, all governments under study do not allow the operators to raise funds in the financial markets.
5. In Hong Kong, the MTRC and the KCRC operate on commercial principles. When examining policy options for improving the monitoring of the accountability of the mass transit systems, four approaches can be considered: (i) introducing direct competition, (ii) price cap regulation, (iii) broadening the participation of the Transport Advisory Committee (TAC), and (iv) scheme of control.
6. Market forces with appropriate government intervention is the formula which enhances competition. Whenever possible, introducing direct competition is the means for safeguarding consumers' interest and ensuring efficiency, and this can be supplemented with measures such as the price cap regulation and broadening the participation of the TAC, as these approaches are not necessarily exclusive.
7. Public utilities under different kinds of control mechanisms continue to make consistent profits and do not have particular difficulty in raising funds. The claim that once the two rail companies are put under some kind of control will lead to losses and concerns about the ability of the two rail companies to raise funds, once their fare revisions are regulated, would require further consideration.

MONITORING OF MASS TRANSIT SYSTEMS

PART 1 - INTRODUCTION

1. Background

1.1 In April 1996, the Legislative Council Panel on Transport requested research in the fare revision process of mass transit systems in Hong Kong. To this end, a survey on the practice of monitoring of mass transit systems in overseas countries, with particularly emphasis on fare control mechanism, was conducted.

2. Objective

2.1 The objective of this paper is to provide the latest information on mass transit systems so as to assist legislators in reviewing the current situation in Hong Kong. The scope of the study, as defined by the Panel, includes (i) ownership of the mass transit systems, (ii) the mechanism and experience of controlling fare revisions, and (iii) operational aspects such as ridership, financial status and ways of raising funds of the mass transit operators.

2.2 In addition to review the experience of overseas countries, the cases of Mass Transit Railway Corporation (MTRC) and Kowloon-Canton Railway Corporation (KCRC) are also presented. Further, four approaches --- introducing direct competition, price cap regulation, broadening the participation of the Transport Advisory Committee (TAC) and scheme of control --- for ensuring a higher accountability are discussed in detail.

3. Methodology

3.1 In order to execute such tasks, the research unit reviews relevant literature and sends enquiries to the transport ministries, government departments and urban rail operators in metropolitan cities, including London, Paris, Tokyo, Osaka, Singapore, Seoul, New York, Los Angeles and Toronto to gather the current information. This report is based on available information from these sources.

3.2 Enquiries are also directed to a number of transport research institutions such as the Transport Research Laboratory, the Transportation Division of the World Bank, the Institute of Transport of Leeds University, and University of London Centre for Transport Studies to seek their professional advice. In Hong Kong, requests are channelled to the Transport Branch, TAC, MTRC and KCRC for information on fare control mechanism and business data.

PART 2 - OVERSEAS EXPERIENCE

4. Ownership

Table 1 - Ownership of Mass Transit Systems

State-Owned Enterprises	
Tokyo	Metro services are provided by the municipal authority.
Osaka	The system is owned and operated by the municipal government.
Paris	Metro services are operated by Paris Transport Authority (RATP) under overall control of a board (syndicate) consisting of government and local authority representatives.
New York	Metro is operated by the subsidiary of the Metropolitan Transportation Authority (MTA). MTA is governed by a board representing city and suburban communities served.
Los Angeles	Los Angeles County Metropolitan Transportation Authority provides the metro services.
Public Corporations	
Hong Kong (MTRC & KCRC)	Public corporations.
Singapore	Mass Rapid Transit Corporation (MRTC) is the construction authority for the metro, and has granted a licence to Singapore Mass Rapid Transit Limited as the operator.
Seoul	The subway is a local public corporation founded by Seoul Municipal Government.
London	Metro services are provided by London Regional Transport, under overall control of government through nominated board.
Toronto	Toronto Transit Commission, responsible to Metropolitan Toronto Council, provides metro services.

Sources : Bushell, C., *Jane's Urban Transport Systems* 1995-96.
 KCRC, *Annual Report*, 1992-95.
 London Department of Transport.
 Los Angeles County Metropolitan Transportation Authority.
 Metropolitan Transportation Authority, New York.
 MTRC, *Annual Report*, 1990-95.
 Osaka Municipal Transportation Bureau.
 Paris Transport Authority.
 Seoul Metropolitan Subway Corporation.
 Singapore Land Transport Authority.
 Toronto Transit Commission.
 Transportation Bureau of Tokyo Metropolitan Government.

4.1 The public sector has long been responsible for the provision of the mass transit services. In fact, the urban railway systems of the surveyed countries including the US, the UK, Japan, Singapore, France, Canada and South Korea are owned and managed either by the government directly or public corporation. In many cases, transport services are provided as social welfare. Further, since mass transit systems require vast amounts of capital for construction, these governments are among the few entities with sufficient funding capabilities to undertake such investment projects. This type of arrangement is unlikely to change in the foreseeable future.

State-Owned Enterprises

4.2 Some of the mass transit systems are directly owned by the State or municipal authorities. Key examples include the metro system in New York, Los Angeles, Paris, Tokyo and Osaka.

New York & Los Angeles

4.3 In the US, certain states practise the most direct form of government control --- the Minister of Transport supervises the operations. Some State governments may even play an important part in preserving and expanding local transit systems. However, the extent of State involvement may vary greatly. Generally, it is high in most States with large metropolitan areas, including New York and California.

Osaka

4.4 The mass transit system is owned and operated by the municipal government directly. The government does not plan to change the form of ownership.

Public Corporations

4.5 Another form of public ownership is through the arrangement of public corporation. This is based on the principle that the management staff should have reasonable discretion to take operating decisions. The Chairman and the Board of Directors are usually appointed by the Secretary of State for Transport who is, in turn, accountable to the Parliament. In broad terms, the Minister provides direction on matters of policy.

London

4.6 The London Underground Limited (LUL) is a wholly owned subsidiary of London Regional Transport; the Chairman and Board of Directors of the former are all appointed by the Secretary of State for Transport. In short, LUL is wholly owned by the government. This has been the case since the 1930s, although the exact form of public ownership has varied from time to time. Further, the government has no plans to privatize the company in order to ensure the service quality.

Singapore

4.7 The Mass Railway Transit (MRT) system was constructed in 1990 and owned by the MRT Corporation, a public corporation. The system is operated and maintained by the Singapore MRT Limited, a government-owned enterprise. As presented in the White Paper on Land Transport System, the major objective of the government is to have a world class public transport system. Hence, the government is committed to maintaining tight control over public transport operators by setting fares and service standards. Further, they do not plan to privatize the system in the near future.

Seoul

4.8 Seoul Metropolitan Subway Corporation (SMSC), founded in 1981 by municipal government, is another example of public corporation. The major tasks are to manage and operate the subway lines in Seoul. The ownership has not changed since the establishment. The government does not have plans to change the form of ownership of the corporation in the foreseeable future.

Toronto

4.9 The Toronto Transit Commission (TTC) was formed and placed under the jurisdiction of the Municipality of Metropolitan Toronto in 1954, and there are no plans to privatize the system.

5. Fare Control System

5.1 Fares are controlled by the respective authorities. For mass transit systems, the most important fact for market organization is that these activities have ordinarily been considered matters of public interest and consequently proper objects for government regulation.

5.2 The authorities tend to regulate this in practice by fixing the price levels. Once the fares and the quantity of service are completely controlled, the trading results (profits or losses) become predetermined.

London

5.3 LUL and London Regional Transport (LRT) are subject to the London Regional Transport Act. This Act has been amended over time, most notably by the Railways Act 1993, but its main provisions are substantially unchanged. In principle, the LRT has the authority to determine the fares. However, Ministers are consulted on the general level of any increases that the LRT proposes to make. A Bill amending the 1984 Act is currently before Parliament; its purpose is to widen LRT's powers so that they can have the maximum benefit from the Government's Private Finance Initiative (an initiative designed to use the private sector to an increasing extent in the provision of public services).

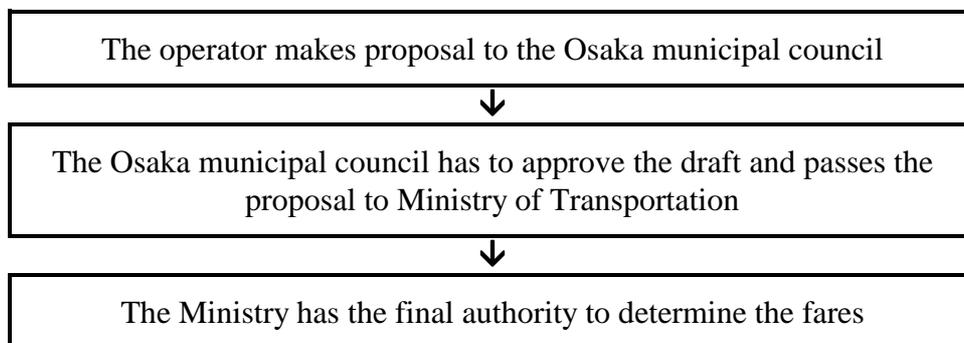
Singapore

5.4 The mass transit operators in Singapore are regulated under the Rapid Transit Systems Act (No. 28 of 1995). Under the Act, the Land Transport Authority (LTA), a government body, can impose conditions regarding the operations of the system. Other than the statutory requirements, LTA regulates the operations by way of terms and conditions in the License and Operating Agreement signed between MRT Limited and LTA.

5.5 The Public Transport Council (PTC), a statutory board under the Ministry of Communications, safeguards public interest on all aspects of routes and fares charged by public transport operators which include MRT, buses and Taxis. The PTC comprises 13 persons appointed by the Minister and they represent a wide cross-section of society --- grassroots organizations, academics, professionals and employers of large corporations. The mass rapid transit operator, the SMRT, has to submit an application to the PTC setting out reasons for the request to raise fares.

Osaka

5.6 The government (Ministry of Transportation) has absolute powers to determine the fares. The operator is the Osaka Municipal Transportation Bureau. The procedures for raising fares are summarized as follows:



Seoul

5.7 The SMSC was established by the local law. In addition, the corporation is regulated by state laws such as "National Railway Law", "Mass Rapid Railway Law", and "Laws of Stabilizing Prices".

5.8 As for fare control, these laws prescribe in general the procedures of raising fares. The central government sets up an annual plan and guideline on public prices which it uses as a primary means of overall economic price-control.

5.9 The procedures for raising fares are complicated. The SMSC seeks approval from the municipal authority. The municipal authority reviews all the relevant matters such as the economic situation, percentage of increase and the above-mentioned annual plan and guideline before granting approval. Once the request is approved, the Ministry of Construction & Transportation of the central government would consult with the Financial & Economic Board (the government authority in charge of controlling prices at the national level) and review the whole issue thoroughly. Hence, it can be concluded that this Ministry of the central government has the final authority in determining the fares.

Toronto

5.10 The TTC is governed under the "Legislation Relative to the Toronto Transit Commission". No changes to these regulations are planned at this time. Changes to TTC fares must be approved by a board of seven Commissioners. The Commissioners are members of Metro Toronto's elected governing council, commonly referred to as Metro Council. Metro Council chooses the Commissioners after each municipal election. Since elections are held every three years, this is also the term of office for the Commissioners.

Pricing Principles

5.11 There are generally two conflicting goals (i.e. cost-recovery versus social benefit) when policies are made regarding the pricing of mass transit services. In practice, user fees (or cost-based charges) should minimize the amount of public subsidy required.

5.12 Those who advance that fees for transportation service be based on paying for the full cost of the service maintain that this type of pricing results in minimal subsidies and is the most efficient use of equipment and labour; that is, the public transportation operator can assign equipment and personnel to routes where user-fee collections exceeding costs. If the public operation does this, it minimizes its needs for subsidies and follows the same rules as a profit-oriented private enterprise operation.

5.13 On the other side of this issue are the advocates of subsidizing the costs. They maintain that subsidies are a necessary and practical form of "income redistribution" and that many people who need transportation services cannot afford them. Also, in developed economies, especially the European Union (EU), the government may attempt to subsidize urban transportation in a way of reducing congestion, air pollution and energy consumption.

5.14 In sum, the aim of fares policies in the surveyed cities is to implement a standard fare system which is practical and equitable, which keeps fares lower than car costs and encourages use of mass transit systems, and which brings in sufficient revenue to cover a reasonable proportion of operating costs. Given the financial constraints, the government hence has to strike a balance between revenue from fares and revenue from other sources to encourage patronage of the public passenger transport network. At present, fare levels in the surveyed cities are reviewed regularly, bearing in mind the changes in costs.

Fares

London

5.15 Decisions on the level of increase are taken in the Autumn and fares are scheduled to raise in January next year. Over recent years, fares have risen by more than the inflation rate, but broadly in line with the increase in people's earnings. These increases have helped the LUL to generate a significant surplus of revenue over operating costs, excluding depreciation and renewals, which has been put towards investment in the system. The government has also taken the view that these increases produce a better balance between funding from users of the LUL and from the general taxpayers.

5.16 In January 1996, LUL's fares increased by an average of 1% in real terms, compared with around 3% in previous years. Lower increases in fares are projected to encourage people to use the Underground, as the costs of using the private car are likely to increase at a faster rate.

Seoul

5.17 The SMSC reviews the fares annually in line with the inflation rate. It should be noted that the consecutive fares increases exceed the inflation rate due to the deteriorating financial status brought about mainly by debt servicing requirement.

Toronto

5.18 Fares in Toronto are determined in such a way that there is adequate funding for operating expenses. The average fare increase for the period 1993-1995 was slightly higher than the inflation rate in Toronto.

Fare Structure

Table 2 - Fare Structure

City	Flat Fare	Distance-Based Fare
Hong Kong (MTRC & KCRC)		✓
Singapore		✓
Tokyo		✓
Osaka		✓
Seoul		✓
London		✓
Paris	✓	
Toronto	✓	
New York	✓	
TOTAL	3	6

Sources : Same as Table 1.

5.19 The majority of the surveyed cities charge distance-based fares. It seems logical that people who travel longer distances should pay higher fares because it costs more to carry them. Hence, with a flat fare, short-distance travelers subsidize long-distance travelers. Meanwhile, some cities such as New York, Paris and Toronto adopt the flat fare system.

5.20 Currently, in most surveyed cities, fares are based on the distance travelled. Charges go up when a passenger enters a new zone. Mass transit operators in Hong Kong, London, Tokyo, Osaka and Singapore adopt this approach.

Grants and Subsidies

5.21 Fare revenues may be insufficient to cover all the operating costs. As the public sector has been responsible for running the major public transport in the metropolitan cities, the governments often offer various forms of financial support to the operators for survival. For the surveyed overseas cities, the authorities of Singapore and London do not provide subsidies to finance the operating costs of the metro system. The urban rail operator in other metropolitan cities such as New York, Paris and Seoul receive grants and subsidies from the government.

5.22 Also, urban railway construction is very expensive and rarely can the revenues recoup the construction costs. Indeed, in some cases not even the operating costs are recovered from the farebox. This may be acceptable where the justification is social benefit, but the cost of such a long-term commitment clearly needs careful examination before being undertaken.

Sources of Subsidies

5.23 The subsidy comes from a variety of government revenue sources. Much of the central government support comes from general revenues, which are derived from various taxes such as individual and corporate income taxes and gas tax. However, the bulk of transit subsidies comes from local government.

Table 3 - Sources of Financing of Operating Costs

City	Sources of Financing	Coverage of Operating Costs
Hong Kong (MTRC & KCRC)	Fares	100%
Singapore	Fares	100%
London	Fares	100%
Tokyo	Fares	79.3%
	Other commercial sources	12.7%
	Subsidy/Grants (subsidy from: national government 37% and metropolitan government 63%)	8.0%
Osaka	Fares	90.7%
	Other commercial sources	8.2%
	Subsidy/Grants (subsidy from: national government 11.5% and city 88.5%)	1.1%
Toronto	Fares	68%
	Metro Toronto	16%
	Province of Ontario	16%
New York (Flat Fare Structure)	Fares	65.6%
	Other commercial sources	1.2%
	Subsidy	18.9%
	State/regional tax levy	14.3%

Remarks : Recovery of fixed costs may not be sourced from operating income above.
Information for Paris and Seoul is not available.

Sources : Same as Table 1.

6. Operational Aspects of the Mass Transit Operators

Ridership Trends

Table 4 - Ridership Trends of Urban Rail Services

City	Year	Million of Rides	Change over Previous Year
Asia			
Hong Kong (MTRC)	1992	751	+4%
	1993	778	+3%
	1994	804	+3%
	1995	812	+1%
Hong Kong (KCRC)	1992	200	+3%
	1993	206	+4%
	1994	220	+7%
	1995	232	+5%
Tokyo	1991/92	568	<i>n.a.</i>
	1992/93	579	+2%
	1993/94	582	<i>Insignificant</i>
Osaka	1991/92	1,004	<i>n.a.</i>
	1992/93	1,002	<i>Insignificant</i>
	1993/94	992	-1%
Singapore	1991	202	<i>n.a.</i>
	1992	219	+8%
	1993	243	+11%
Seoul	1991	1,241	<i>n.a.</i>
	1992	1,354	+9%
	1993	1,388	+3%
Europe			
Paris	1991	1,199	<i>n.a.</i>
	1992	1,201	<i>Insignificant</i>
	1993	1,177	-2%
London	1992/93	728	-3%
	1993/94	735	+1%
	1994/95	764	+4%
North America			
New York	1992	997	<i>Insignificant</i>
	1993	1,030	+3%
	1994	1,083	+5%
	1995	1,093	+1%
Toronto	1993	393	<i>n.a.</i>
	1994	388	-1%
	1995	388	<i>Insignificant</i>

Remarks : n.a. represents figures not available.

Sources : Same as Table 1.

6.1 Underground and other forms of urban rail service is often the dominant means of transport, especially for centre-oriented work trips. Urban rail services operating on segregated track can be much faster than other means of transport. Metro-type rail systems are often credited with enhancing the life of the city centre, and it is suggested that mass transit systems can successfully retain its ridership in the face of increasing private car ownership.

6.2 Table 4 shows the ridership trends for urban rail services in a number of major cities. Generally, the ridership trends have been relatively stable in most of the cities. Among all, Asian cities like Hong Kong, Singapore and Seoul have performed better than the rest, partly brought about by their increasingly active economies.

Financial Status

London

6.3 The LUL has been making surplus in recent years, when one compares its revenues with operating costs. The term "surplus" is distinguished from "profit, as the former ignores renewals and depreciation, or any enhancement to the system. The government currently contributes around 60% of the money for London Underground's total annual investment program (for renewal and replacement), and the need for government grant will remain in the future.

Singapore

6.4 The MRT aims at providing quality service at affordable prices. In 1993/94, the operating profits amounted to S\$108.3 million (HK\$550.2 million), and are retained and invested in financial assets.

Ways of Raising Funds

London

6.5 The government does not allow operators to borrow money through the financial markets. This restriction is considered necessary as the Treasury controls the total amount of borrowing by the public sector. It also reflects that mass transit operators would not be able to borrow at the advantageous terms given to the Treasury. Any borrowing by the operators should take the form of borrowing from the government.

6.6 In practice, mass transit operators receive non-repayable government grant. The investment requirements are considered each year by the government, and decisions are taken about the amount of grant that it will receive.

Osaka

6.7 The Osaka municipal government issues public bonds to raise funds. The bond rate is around 3% as of FY 1995.

Singapore

6.8 The MRT does not require borrowings to finance its operations as the system was built and financed by the LTA and leased to MRT. The initial capital of S\$150 million (HK\$646.5 million) and retained earnings are reportedly sufficient for operations. Hence, the MRT does not need the credit ratings from the various agencies.

Seoul

6.9 The main source of funding is through issuing public bonds in the domestic capital market. Seoul municipal authority has the right of issuance on demand-by-operator basis. Hence, the debt of the SMSC should be considered as municipal debt in a broad sense. The yield rate for Seoul municipal government long-term bond hovers at 10% level.

Toronto

6.10 The TTC does not raise funds in capital markets. Capital projects are funded by the Provincial Government of Ontario and Metro Toronto.

PART 3 - APPLICABILITY TO HONG KONG

7. Hong Kong

Ownership

7.1 Both MTRC and KCRC are wholly-owned by the government; they are public corporations set up under the MTRC Ordinance and the KCRC Ordinance, respectively. Nevertheless, both operate under prudent commercial principles with a primary objective of recovering costs without government subsidy.

Fare Policy

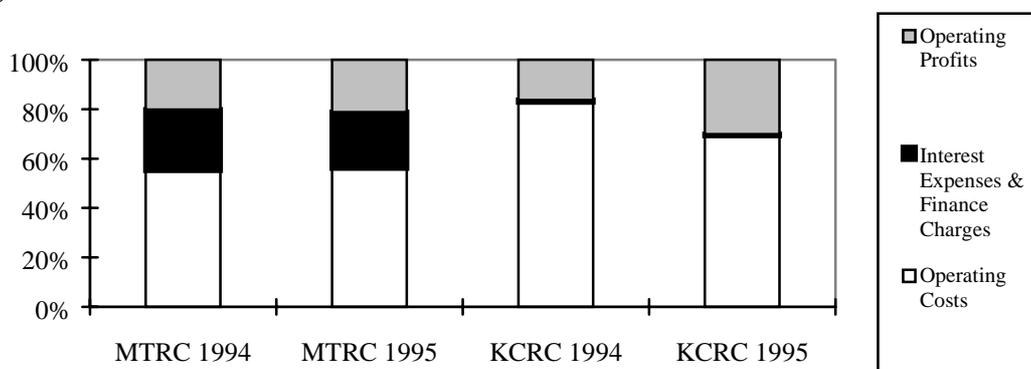
7.2 Under existing laws, both MTRC and KCRC are empowered to determine their fares, provided by Section 6(2)(f) of the MTRC Ordinance and Section 4(2)(e) of the KCRC Ordinance. The financial objectives of these corporations are:

- to obtain sufficient funds from its passengers to service its debts;
- to meet operating costs and capital expenditure without government subsidy; and
- to reward shareholder with dividend payments.

7.3 To fulfil its financial obligations, they have adopted a strategy of reviewing their fares annually in line with the inflation rate taking into account public acceptability.

Financial Status

Figure 1 - Financial Health of MTRC and KCRC

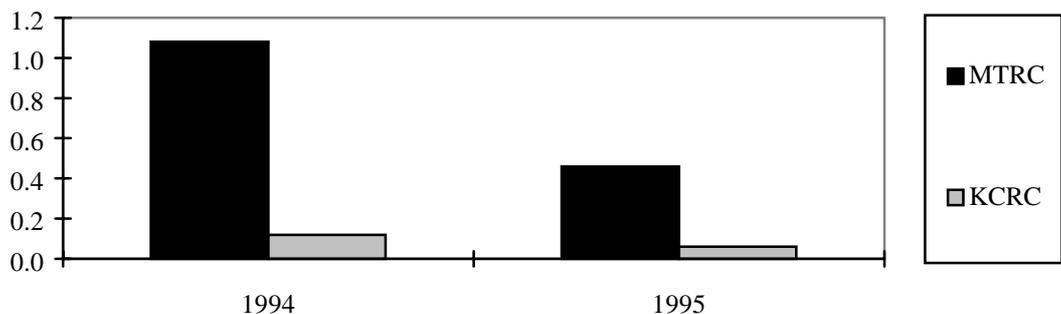


7.4 Figure 1 shows the financial health of MTRC and KCRC, which is illustrated by their respective operating profits, operating costs, and interest expenses & finance charges, represented as percentages of their revenues. It can be seen that revenues are sufficient not only in recovering operating costs, but also in covering interest expenses and finance charges.

Ways of Raising Funds

7.5 In contrast to operators in overseas countries which do not borrow commercially, both MTRC and KCRC borrow on commercial terms under the prudent commercial principle. Figure 2 shows their debt-equity ratios¹ for the years 1994 and 1995. It can be noted that the two rail operators have very different leverage ratios.

Figure 2 - Debt-Equity Ratios of MTRC and KCRC



7.6 In the case of MTRC, it even issues its own commercial papers/bonds both locally and internationally. Outstanding balance at end-1995 amounted to HK\$9,459 million, 64% of which were denominated in foreign currencies.

7.7 It is sometimes argued that any change that imposes uncertainty on the firms' future revenue may increase the burden on interest expenses, which may ultimately affect consumers. On the other hand, it is also argued that a lack of tight control over fare increase will reduce the incentive in cost control, which may lead to fare increases.

¹ Debt-equity ratio refers to a ratio of debt to shareholders' fund, and debt here is defined as non-equity.

8. Policy Implications in Monitoring Mass Transit Systems

8.1 After reviewing the practices of mass transit systems in overseas countries, we recognize that these systems are predominantly government-owned and subsidized. Public transport is considered to be a necessity that should be provided to the public as a social benefit. This is in contrast to the practice in Hong Kong where companies operate on prudent commercial principles. Hence, the experience and modes of monitoring in overseas countries may not be directly applicable to Hong Kong. In examining policy options for improving the monitoring of the accountability of the mass transit systems, several approaches can be considered: (i) introducing direct competition, (ii) price cap regulation, (iii) broadening the participation of the Transport Advisory Committee (TAC), and (iv) scheme of control.

Introducing Direct Competition

8.2 The first option is to promote direct competition. At present, the two rail companies serve different regions of the territory, and are the sole provider of rail services to their respective regions. As experienced in Hong Kong, the best way of ensuring efficiency of the companies and safeguarding consumers' interest is enhancing open and fair competition. To this end, the government may consider introducing more direct competition among various modes of transport² and let the market choose the winners. For instance, the introduction of the bus routes no. 300 (between Prince Edward MTR station and Central) and no. 100 (between Tsim Sha Tsui and Causeway Bay) is a kind of direct competition between the MTRC and the bus operator; it gives the consumers a choice between different modes of transport down the Nathan Corridor and crossing the harbour. A move towards this direction would likely enhance competition and efficiency, which will ultimately benefit both the consumers (through keeping prices down) and the regulated firms (through keeping costs down).

² Ideally, there should also be promotion of competition in the provision of rail services. Nevertheless, providing rail services requires enormous initial investment, although the cost of providing such services to an additional passenger (i.e. the marginal cost) is small. There are huge economies of scale involved so that there may not be any potential entrants in the rail industry. Introducing competition in this sense may not be an easy task.

Price Cap Regulation

8.3 The second option of price cap regulation is to set the maximum level that the regulated firm can raise its price. The price cap regulation is based on a formula, **permitted price increase = CPI - X**, where CPI represents consumer price index and X represents a factor dictating the share of productivity gains of the regulated firm which is to be allocated to the consumers. Detail exposition on the formula and the setting of X is relegated to Appendix 1.

8.4 The idea of the price cap regulation is to ensure that fare increase will be set at some level below the inflation rate so that consumers can always share the benefits from the productivity increase of the regulated firm. Currently, only Hong Kong Telephone Company is regulated under this kind of price control. The agreement limits annual increase in local telephone services to 4% below the rate of inflation. For illustration purpose, the inflation rate of Hong Kong for the last three years averaged 8.5%. Should X be set at 4%, the permitted price increase would be 4.5%. Advantages in adopting the price cap regulation include:

- The firm takes the maximum permitted price increase as given and all it has to do is to minimize costs. In other words, the regulated firm will try to operate in the most efficient manner.
- The firm will have the incentives to undertake innovation (product and production innovation), as the firm is allowed to keep any level of profit.
- There is no tendency for the firm to inflate their fixed assets, in contrast to the case of the scheme of control (to be discussed in paragraphs 8.11-8.13). The firm will choose the most appropriate capital-labour ratio which minimizes costs.
- Consumers benefit from the productivity growth of the firm.
- Administrative cost of this kind of price cap regulation is low. What the government needs to do is to review the factor X periodically and control the quality of the service.

8.5 On the other hand, the price cap regulation suffers from the fact that it may impose rigidity on the system. Besides, setting of the factor X could be arbitrary.

8.6 It must be noted that according to the reports of the MTRC and the KCRC, annual fare increases have been lower than the inflation rate, implying that consumers have benefited. However, it is not known how such price increases are determined, in what ways and by how much the consumers have benefited.

Broadening the Participation of the Transport Advisory Committee

8.7 Apart from these two approaches, one may also broaden the participation of the Transport Advisory Committee (TAC). At present, the members of the TAC are all appointed by the Governor and mostly come from the government, professional bodies and the business community. As public transport affects a large majority of the community, this is an area of major public interest; hence, the authorities may consider broadening the membership of the TAC so as to include more representatives of the parties concerned.

London

8.8 In London, the Transport Users' Consultative Committee (TUCC), which serves as a public watchdog on the performance of the British Rail, includes people coming from different sectors. The representatives are appointed by, and report to, the Board of Trade, which has the responsibility of consumer affairs. They are funded by the same Ministry and have their own permanent staff. These arrangements give the TUCC a fair degree of autonomy and ensure independence from the Secretary of State for Transport.

8.9 Besides, there is a statutory body, London Regional Passengers Committee (LRPC), which was set up in 1984 to provide not only the same role as the TUCC, but also to cover a broader range of public transport services --- not only the British Rail. Members of the LRPC include representatives of local passenger groups, industry and commerce, women's organizations, local tourist boards and organizations representing senior citizens and disabled people. Unlike the TUCC, the LRPC holds its meetings in public, and its minutes and reports are widely distributed.

Singapore

8.10 In Singapore, the Public Transport Council (PTC), a statutory body which performs similar role, consists of representatives coming from various strata of the community. Among the 13 members in the PTC, nine of them represent different interests of the community, while the other four are ex-officio members representing the various operators.

Scheme of Control

8.11 The scheme of control is essentially a system of profit control. Under this system, there is a permitted return to the fixed assets³. Any excess over the permitted return will be transferred to a Development Fund. If there is a shortfall, transfer will be made from the Development Fund as long as there is a balance available.

8.12 The advantage of the scheme of control is that it prevents a firm from earning excessive profits. Rather, it allows the operator to cover its costs, plus recoup a "fair" return. However, the scheme of control may suffer from several inefficiencies.

- The first inefficiency⁴ arises from the incentives on the part of the regulated firm to inflate its fixed assets. Since the level of profit depends on its asset base, the regulated firm tends to over-capitalize so as to allow a larger permitted return.
- The second inefficiency originates from the fact that the scheme of control provides less incentives for the regulated firm to minimize its costs, as profit depends on asset base. The firm may not be rewarded even if it reduces costs significantly because the excess profit will only be transferred to the Development Fund.
- The third inefficiency arises because there are neither incentives for the firm to use any cost-saving production method to facilitate growth nor rewards for it to undertake any innovation. Consequently, new products or services are not introduced to respond to or accommodate changes over time.

8.13 Besides, the administrative cost could be high, as the regulator has to monitor, apart from the profit level and the quality of the service, the acquisition of fixed assets --- the government needs to assess whether the acquisition is justified.

³ At present, China Light & Power Company, Limited (CLP), Hongkong Electric Holdings Limited (HKE) and Kowloon Motor Bus (KMB) operate under the Scheme of Control with permitted return of 15%, 15% and 16%, respectively.

⁴ This inefficiency is known as Averch-Johnson (1962) inefficiency.

PART 4 - SUMMARY OF FINDINGS

9.1 The mass transit systems in overseas countries are mostly government-owned and subsidized. Their experience and modes of monitoring may not be strictly comparable to the situation of Hong Kong. Contrary to their previous tendencies, operators in these countries now attempt to reduce subsidies. The targets of these countries are: (i) self-sufficiency, (ii) efficiency, and (iii) provision of quality service.

9.2 In fact, the MTRC and KCRC are already self-financed. Fares do not only cover operating costs, but also repay construction costs. In terms of efficiency, average costs in real terms for the two companies have been stable or even falling in the past few years. Besides, complaints on the two companies accounted for 1.3% (116) of the total (8,915) for the year ended 31 March 1995.⁵

9.3 Under current practice, the Administration has no overriding authority in determining fares. Yet, this does not imply a lack of monitoring or the firms can do whatever they want. Diagrams 1 and 2 show the fare consultation processes of the MTRC and KCRC respectively. The Administration does influence the final decision in a number of fora such as ExCo or the Transport Advisory Committee. The LegCo is also consulted through the discussions in the Transport Panel.

9.4 Market forces with appropriate government intervention is the formula which enhances competition and ensures benefit to the community. Whenever possible, introducing direct competition is the means for safeguarding consumers' interest and ensuring efficiency. However, this can also be supplemented with other measures such as the price cap regulation and broadening the participation of the TAC, as the approaches are not necessarily exclusive.

9.5 It should also be noted that a number of public utilities are operating under the scheme of control and the price cap regulation. These companies are able to make consistent profits and do not encounter particular difficulty in raising funds. The claim that once the two rail companies are put under some kind of control will lead to losses and concerns about the ability of the two rail companies to raise funds, once their fare revisions are regulated, would require further consideration.

⁵ The complaints on the two rail companies increased by 24.7% during the year. This compared with the 11.4% increase in complaints on all types of transport. Nevertheless, the high growth may be due to the small base for comparison. Also, as the two rail companies together accounted for 31.5% of the total passenger journeys, the 1.3% share in total volume of complaints on all modes of transport is considered low.

Abbreviations

CPI	Consumer Price Index
EU	European Union
ExCo	Executive Council
KCRC	Cowling-Canton Railway Corporation
LegCo	Legislative Council
LUL	London Underground Limited
LRPC	London Regional Passengers Committee
LRT	London Regional Transport
LTA	Land Transport Authority, Singapore
MRT	Mass Railway Transit, Singapore
MTA	Metropolitan Transportation Authority, New York
MTRC	Mass Transit Railway Corporation
PTC	Public Transport Council, Singapore
RATP	Paris Transport Authority
SMSC	Seoul Metropolitan Subway Corporation
TAC	Transport Advisory Committee
TTC	Toronto Transit Commission
TUCC	Transport Users' Consultative Committee, London

Appendix 1 - The Price Cap Regulation

1.1 The price cap regulation is based on the formula:

$$\text{permitted price increase} = \text{CPI} - X$$

where X depends on productivity growth of the regulated firm. Suppose

$$X = \alpha K$$

where K represents expected rate of productivity growth, and
 α represents a parameter ranging from 0 to 1.

1.2 K is the expected productivity gain announced and agreed *ex ante* at the implementation of the price cap regulation for a certain period of time. Parameter α can be regarded as a ratio dividing the share of productivity gain between consumers and the firm. In the extreme case where $\alpha = 0$, X will also be zero. The regulated firm is allowed to raise price equal to the inflation rate, implying that all productivity gain goes to the firm. In another extreme case where $\alpha = 1$, we then have all productivity increase allocated to consumers. Similarly, when $\alpha = 0.5$, it means consumers share half of the productivity gain.

1.3 The major problem of this kind of price control is to set the factor X on the basis that it gives the firm incentives to improve productivity and at the same time consumers can benefit from productivity increase. As for reference, Hong Kong Telephone Company agreed that X be 4%, while for British Telecom 4.5% in 1990, 6.25% in 1991 and 7.5% since 1993. Notice that it is in the interest of the firm to understate the productivity growth so as to minimize the factor X and allow a larger price increase. In order to rectify the situation, Cre and Kleindorfer (1987) suggest that X should be set in the following manner:

$$X = \alpha H + \beta \max(H - K, 0) \quad \text{equation (1)}$$

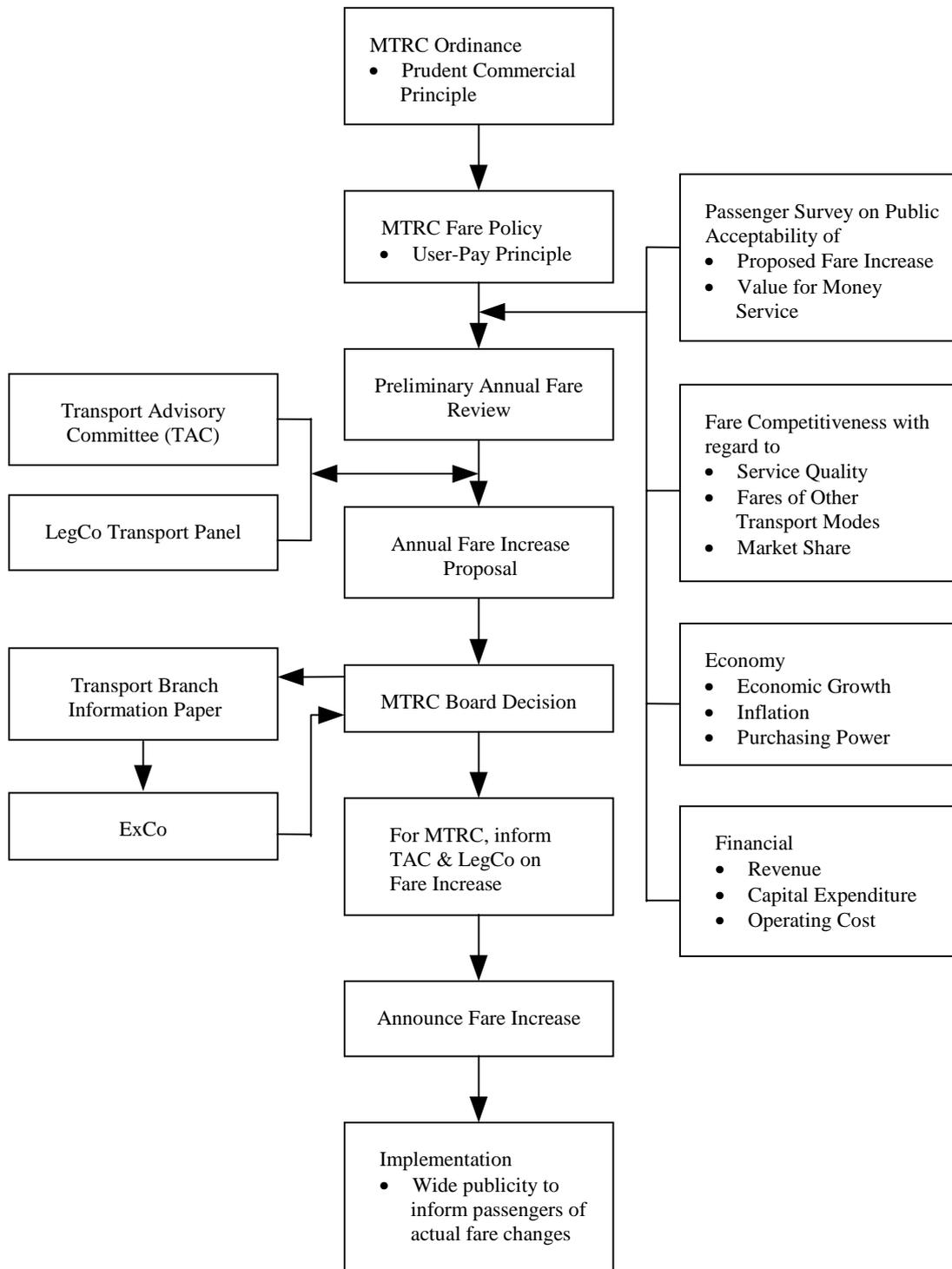
where H represents actual rate of productivity growth,
 K represents expected rate of productivity growth, and
 α, β represents parameters ranging from 0 to 1.

1.4 The second term on the right hand side of equation (1) is the penalty imposed on the regulated firm if there is a shortfall of the expected productivity growth from the actual productivity growth. Parameter β sets the severity of the "penalty". The larger the value of β is, the larger is the value of X , and the more severe is the penalty. Since it is in the firm's interest to minimize the factor X , the regulated firm has to declare K honestly (trying to get K nearest to H). Equation (1) essentially prevents the firm from understating the expected productivity growth rate. It must be noted that the price cap regulation should also take into account the future expansion of the regulated firm. As the MTRC is involved in the construction of the Airport Railway and the KCRC may also take a key role in the development of the North-West Railway, the price cap should be determined in such a way that it allows sufficient revenue for the two firms to participate in these projects. Otherwise, it is the government (taxpayers) who has to pay.

1.5 The value of X depends on the values of H , K , α and β . While H is known only after the specified period, K has to be estimated before. Econometric and regression analysis have to be conducted for this end. For the values of α and β , they are set arbitrarily and one has to strike a balance between efficiency and equity. On this basis, we believe that it is the job of the companies to declare K and it is the job of the government to negotiate with the companies the values of α and β . In the process, transparency is urged.

Diagram 1

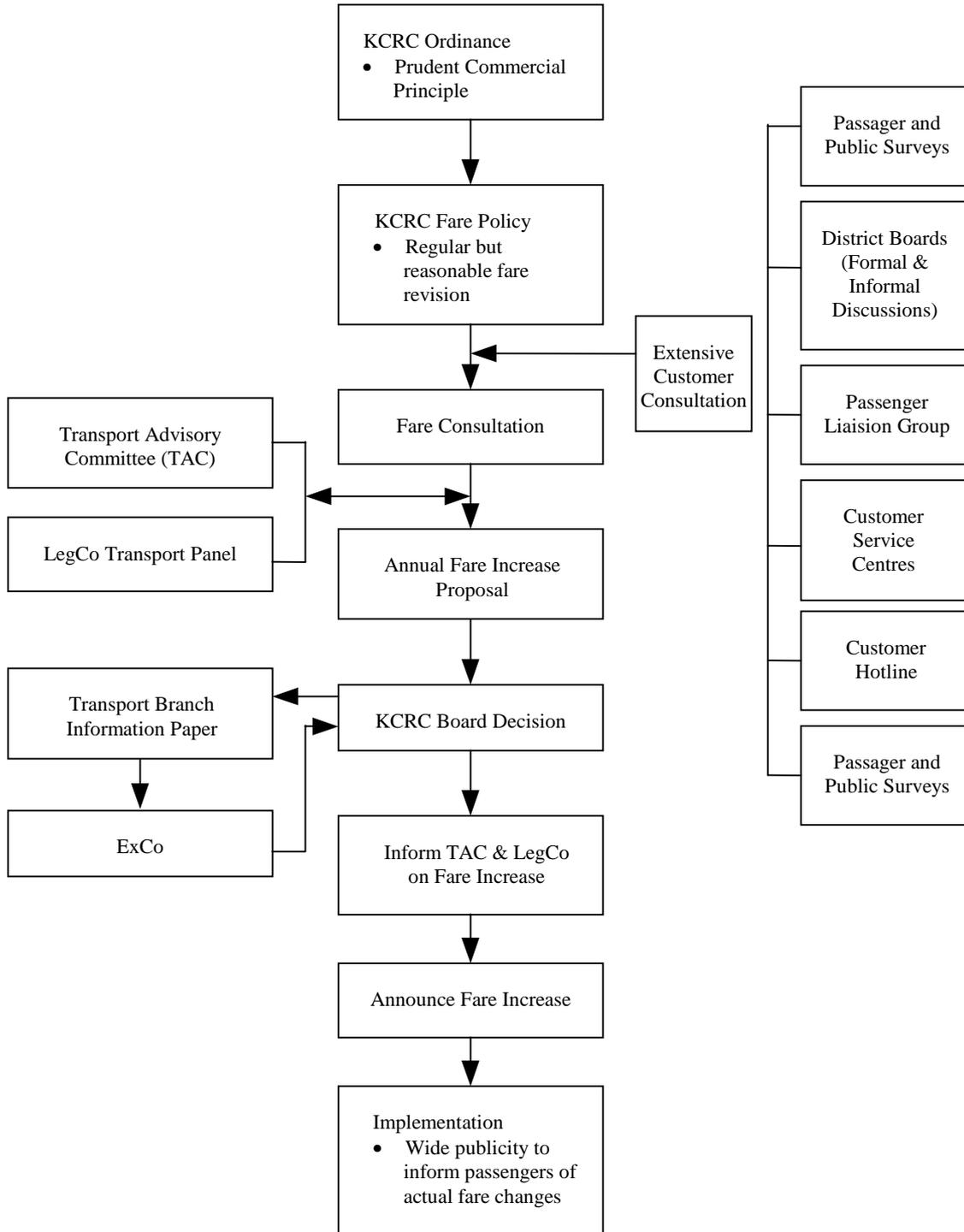
MTRC Fare Consultation Process



Source: MTRC

Diagram 2

KCRC Fare Review Process



Source: KCRC

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