

MERGING HONG KONG'S RAILWAYS

The Public Interest Perspective



December 2004



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Civic Exchange
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PREFACE

Civic Exchange embarked on this research to look into the possible merger of the Mass Transit Railway Corporation Limited and the Kowloon-Canton Railway Corporation because we believe there is a vital public interest perspective that might not be fully explored before the Hong Kong Special Administrative Region Government responds to the two rail companies' merger proposal. The public discussion that will come soon provides an important opportunity for the community to focus on transport policy.

In considering the merger of the two railway companies, we urge the Executive Council and the Legislative Council to remember that apart from any operational and/or financial synergies achieved, it must always be borne in mind that rail services are a core part of public transport; and that the planning of our transportation system is a critical aspect of urban planning and development. The purpose of this report is to provide a concise account of key issues related to the proposed merger with particular consideration of the impact of transport policy on Hong Kong's future social and economic development. While we do not propose how the merger should be implemented, Civic Exchange nevertheless hopes this report will be useful to legislators and the general public in considering the many complex issues relating to it.

This report would not have been possible without the active assistance of many people. Civic Exchange wishes to thank Dr. Bill Barron, Andrew Taylor, Simon Ng, Anuradha Chavali and Roger Moss for their many contributions to the content of this report. We also greatly appreciate Kuok Khoo Ean for providing the necessary financial assistance. We wish to thank Carine Lai for helping us to edit and layout the report, and Ken Can-yuan Li for the cover design.

Christine Loh
Chief Executive Officer

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EXECUTIVE SUMMARY

A merger of the Mass Transit Railway Corporation Limited (MTRCL) and the Kowloon-Canton Railway Corporation (KCRC) would have important financial implications for the Hong Kong Special Administrative Region Government (HKSARG). Since the KCRC is wholly government owned, the HKSARG's share of a merged corporation would increase significantly, providing an opportunity for (and possibly a requirement for) it to sell additional shares. While such a prospect is appealing, there are wider economic and social ramifications of a possible merger as well. Although financial considerations play a major role in any merger, the fact that passenger rail transport is vital to the very functioning of Hong Kong makes the merger a crucial public policy concern.

Civic Exchange's aim in this report is not to propose how to construct the merger, but to emphasize that the most substantial potential benefits arising from it are in putting public transport policy on firmer tracks towards achieving rail-led transport, as is already government policy but not yet being optimized.

MTRCL Equity Holders' Perspective

A merger must meet the requirement set out in the listing of the MTRCL that equity holders receive a Weighted Average Cost Capital (WACC) plus 1% to 3%. This implies that the HKSARG must sell the KCRC to the MTRCL at a price whereby the expansion to the MTRCL's business yields WACC plus 1% to 3%. This requirement may, however, be difficult to achieve.

Firstly, the KCRC's new lines are likely to be loss making for the foreseeable future. Secondly, the Hong Kong's population growth is slowing and densities are likely to decrease somewhat. Hong Kong's old railway funding mechanism of granting the rail corporations property development rights near stations only worked in areas of extreme density (Tseung Kwan O was probably the last extension feasible under that model). The HKSARG has the choice of continuing to devise ad hoc forms of support, as it did for Penny's Bay Link (now known as Disneyland Resort Line) and West Rail, or providing some level of direct support for railway expansion (e.g., a major portion of the cost of line construction). Thirdly, property developers have a large 'landbank' near the new KCRC lines, providing potentially stiff competition for the KCRC's own prospective property developments. Finally, and perhaps most fundamentally, the HKSARG is not being proactive in promoting rail-based public transport over road passenger transport.

The MTRCL was able to list at the valuation it achieved due to the success of its government-supported property development business, in particular that for the Airport Express/Tung Chung Lines, and also because the market believed the company had autonomy in setting fares. Indeed, it appears that private equity holders in the MTRCL see the nature of their investment as one of property development as well as transport. Nonetheless, in light of opposition from other property developers and recent fluctuations in the local property market, it is unclear to what extent property will continue to play in financing new rail lines.

Urban passenger rail lines are rarely, if ever, fully self-financing. Nevertheless, railways are built because they provide vital economic and social benefits that are outside of the service provider's sources of revenue (e.g., faster and more reliable

travel time, reduced road congestion, higher carrying capacity, lower environmental impacts and positive impacts on property values). As with some other forms of public infrastructure, railways require public financial support so they may attain a scale sufficient to generate the desired level of these external benefits for society as a whole.

Separating Fixed Asset Accounting Depreciation from Profitability

From a financial perspective an investment in an expanded MTRCL would look much better (indeed, may only be feasible), if the depreciation of its fixed 'assets' (rail lines) was greatly reduced. To put this in perspective consider how 'profitable' bus companies would appear, if they had to depreciate their share of the cost of the roads they use (or even bus lanes) by explicitly charging bus riders for the amortized cost of road construction and maintenance. If they had to do so, the companies would need to generate a far higher return (to offset the depreciation 'costs'). Alternatively, the 'value' of the roads might be written down to something quite low, thus obviating much of the depreciation charge. This would allow the bus companies to generate a lower return and still book acceptable profits.

There are four basic ways of doing this:

1. **Write down the value of the assets:** The simplest solution is to write down the value of the assets so that the assets yield a post-depreciation WACC plus 1% to 3% to private shareholders. Probably HK\$30-35 billion of the KCRC's fixed assets could be written off to lower booked depreciation costs to make it easier for the MTRCL to absorb the KCRC.
2. **Buy out MTRCL minority shareholders, restructure the assets and re-list the company:** This method could cost HK\$16 billion. Even if the HKSARG were willing, it could be difficult to convince the market of the appropriateness of a listing, followed by a 'privatisation', followed by a new listing. Finally, minority shareholders might quite rightly demand a considerable premium to sell, as is common in market capitalisations and privatisations of this type.
3. **Government buys back the infrastructure and the MTRCL/KCRC acts as operator:** This option would require re-negotiation of the debt structure of both corporations and the private equity part of the MTRCL. Further, it would require a scheme of control that ensures adequate maintenance to avoid poor performance.
4. **Realising property to help railway assets:** This option would allow the MTRCL to book a profit on the property sale to counteract a write down in its own fixed rail assets (so as to reduce the ongoing depreciation burden). Clearly, such a write down would have to be significant enough such that the on-going depreciation would be low enough for the MTRCL to handle. This approach would also allow the HKSARG to retain control of the 'landbank' of development rights and sell the investment property rights off as a real estate investment fund (REIT). However, it would take away an essential part of the funding model for new lines. Further, MTRCL minority shareholders may see their investment as having exposure to both property and a railway.

Cash Flow Drives Equity Value

Cash flow, not fixed assets value, drives equity value. With the book value of the fixed assets written down, the medium term booked profits will be higher. However, there will be a massive loss booked in the year of the write off. This loss can be counteracted by a relatively low price for the KCRC paid for by the MTRCL.

The merger could be conducted through a share swap but it is likely that the MTRCL may not have enough cash to pay for the KCRC. Hence, the HKSARG's share of the combined entity would likely rise above 75% (depending on the price paid for the KCRC) leading to a requirement for another sell down of government holdings to avoid breaching listing rules. Managing the public relations well is important so that the public can see the returns for the merger extend far beyond profit and loss statement.

By whatever means a write down in asset value might be achieved, the specific detailed requirements in the covenants of the corporations' lending documents will be important. If it is assumed that the KCRC's asset position is written down to HK\$26 billion, this would allow the MTRCL, with net assets of HK\$57 billion, to maintain control of the listed company. This is important, since the MTRCL has experience with listed markets and has built a solid reputation as a manager. However, even at an investment of HK\$26 billion, the MTRCL's profit from 2003 represents a return on investment of only 4.6% – well below the WACC plus 1% to 3% required by shareholders. Hence, the property rights will have to remain with the rail companies.

The Broader Public Policy Context

If Hong Kong is to solve its congestion and chronically unhealthy street-level air quality, it has to do more than merely pay lip service to a rail-led transport policy. Hence, the possible merger of the MTRCL and the KCRC takes on enormous significance.

The external benefits of rail go much further than reducing congestion and air pollution. A new rail line combined with feeder bus services can obviate the need for a new road, or the substantial up-grading of an existing one. Rail-led transport significantly reduces the continuing loss of amenity land and coastline to roads and their setbacks. In addition rail provides valuable savings in travel time and makes travel times more predictable. Further, it substantially raises property values in station catchments. Rail can also handle growth much more easily.

Having two separately planned and managed rail systems has created inefficiencies. They currently do not compete in ways that add to efficiency, but rather 'compete' in ways that detract from it. With two systems, the design of the overall network is not being optimised, making it harder for rail to compete with its chief rival, franchised buses. Hence a merger, through its impetus for better design of interchange points and through fares, works toward the policy aim of promoting rail-led transport.

The competition between rail and franchised buses has implications for how the merger should be viewed. For capital intensive transport systems like rail, the average cost of service provision is largely a matter of the load factor. Since the minimum average fare on a system is ultimately set by the average cost of service, load factors are key.

Tying transport fares to a consumer price index (CPI) would be seriously misdirected. Fixed interest payments are an important part of the costs of such systems and the real value of such payments varies inversely with general price levels, not with them.

While a merger of the MTRCL and the KCRC would help to promote higher load factors, a much greater potential lies in having proper coordination between bus and rail. Hence, the best strategy to lower transport fares is a shift towards a balance of competition and coordination between bus and rail.

In considering whether this would represent a reduction in choice, it should be noted that choice is not free. The average load factors of existing modes drop when another transport mode is added. Hence their average cost of service (and ultimately the minimum fares they can charge) would go up.

In considering the right competitive environment for public transport for Hong Kong, it should be noted that the city's current transport systems are in actual fact not self-financing. Rail receives a modest but essential government-sponsored support through property development rights near stations. The property development rights support roughly 10% of the MTRCL's revenue. Buses pay no fuel duty and licensing/registration fees. They get the use of roads free of charge and even have access to their own designated 'bus lanes' without levy. Taking the non-concessionary price of diesel fuel as the base, the value of this government sponsored support amount to about 13% of the revenue of Kowloon Motor Bus in 2003. Both types of support are given in recognition of the external benefits of high capacity mass transit.

Conclusions

Merging the MTRCL and the KCRC will be good for Hong Kong. It removes certain inherent and wasteful conflicts. It should help put passenger rail in Hong Kong on a sound corporate and financial footing. This will allow rail to better play its crucial role in achieving stated transport and environmental policies.

The merger may offer opportunities for lower fares. However, this should not be the reason to support the merger. The merger is a way to strengthen rail's ability to compete more effectively against road transport. The greatest potential for lower transport fares lies in raising load factors on the heavier transport carriers, which can best be promoted by some degree of balance in coordination versus competition between rail and road transport.

Railways are essential to the proper functioning of high density urban settings. But railways are expensive and require significant public sector support to compete commercially against road transport which imposes high but largely un-priced external costs on society. Public sector support in one form or another is provided by governments around the world in recognition of the fact that for large, dense urban areas, rail provides vital external benefits to society at large that are not readily captured by the service provider.

The MTRCL should acquire the KCRC's assets so as to provide an attractive platform for future equity investors. Yet, the KCRC's relevant line assets must be acquired at a value that enables the successor to acquire a commercial return. This means the KCRC's assets should be acquired at a price that reflects their economic value rather than their construction cost. The HKSARG should ensure that there is a

high level of transparency in the merger transaction and should not try to disguise true values just because they may be large.

New railway lines must be justified on transport, economic and environmental grounds; once one is justified it should be afforded appropriate public sector financial support. The proven MTR property model should be considered as one method of support, along with others (e.g., grants to cover part of the construction cost of new lines).

With a sound, financially secure single railway company, Hong Kong can have a transport future to be envied once again by other major cities.

CHAPTER 1: INTRODUCTION

In June 2002, the Executive Council (ExCo) instructed the Administration to consider the feasibility of merging Hong Kong's two rail companies, the Mass Transit Railway Corporation Limited (MTRCL) and Kowloon-Canton Railway Corporation (KCRC). After a period of in-house study, the Administration concluded that a merger could bring benefits to the rail corporations, the general public, as well as the Hong Kong Special Administrative Region Government (HKSARG). In February 2004, the Administration invited the two rail corporations to commence negotiations on a possible merger bearing in mind several parameters set by the Administration.¹ In mid-September 2004, a joint report prepared by the two corporations was submitted to the Administration for further study and discussion.² This joint report, which "outlines a plan to integrate the two railroad operations",³ has not yet been made public at the time of this writing (November 2004). The HKSARG may announce its thinking in the early part of 2005.

1. Government Objectives and Public Interest

The possibility of merging Hong Kong's two rail corporations is not new. The issue has been raised before on the basis that a merger might result in resource savings and better management.⁴ However, the timing of the announcement on 25 June 2002 fuelled speculation that the merger was proposed at that time as a sweetener for the MTRCL, who on the same day lost out to the KCRC in a government tender for building and operating the Shatin-Central Link (SCL). Another possibility was that a merger would in effect be a back-door listing of the KCRC, since the MTRCL is already a partially listed company. With much talk in 2002 about the worrying size of the Government's budget deficit, it was also suggested, that the HKSARG would sell a second tranche of the MTRCL's shares (once it was enlarged with the absorption of KCRC) as a way to reduce the budget deficit.⁵

The HKSARG's response to the speculation was that its internal assessment of the merger would take into account "transport policy objectives, the interests of long-term railway development in Hong Kong, and the wider legislative and economic implications", and not just possible financial gains.⁶ The Secretary for Environment, Transport and Works (SETW) re-iterated her commitment to lower public transport fares, and saw the possible merger as an opportunity to review the fare structure for rail and to adopt a

¹ HKSARG, '2 railway corporations invited to start talks on possible merger', press release, 24 February 2004. Key parameters include (i) adoption of a more objective and transparent fare adjustment mechanism; (ii) abolition of the second boarding charge and review of the fare structure with the objective of reducing fares; (iii) early resolution of interchange arrangements for rail projects under planning, notably the Shatin-Central Line (SCL); (iv) ensuring job security for the frontline staff of both corporations at the time of the merger; and (v) provision of seamless interchange arrangements in the long run.

² The report was originally due end of August 2004. In response to the HKSARG's late request to also study the impact of Express Rail Link (ERL) to Guangzhou on Hong Kong's rail network and on the merger, the two corporations asked for extra time to conduct their study. The submission was subsequently put back to mid-September 2004.

³ MTRCL & KCRC, 'MTRCL and KCRC submitted joint merger report to Government', press release, 16 September 2004.

⁴ *Hong Kong Economic Journal*, Editorial, 30 October 2002.

⁵ Howard Winn, 'Hong Kong's urge to merge', *Far Eastern Economic Review*, 10 June 2004.

⁶ HKSARG, 'Operator award for the Shatin to Central Link & feasibility study of railway merger', press release, 25 June 2002.

'more objective and transparent fare adjustment mechanism'.⁷

In preparation for consideration of a possible merger, the HKSARG commissioned N M Rothschild & Sons (Hong Kong) Limited in 2003 for independent advice. Rothchild's report submitted in August 2003 concluded that "a merger between the two corporations would be beneficial on sensible terms of exchange, fare reductions and regulation".⁸ It is important to note that only a portion of the information and advice N M Rothschild & Sons has given in its evaluation has been made public. It would be useful for the unabridged version to be made available to the public so as to enhance legislative and public scrutiny of the possible merger and its terms.⁹

From what has been published, it can be seen that based on discussions with relevant government officials, the Rothschild Report defined and provided a list of core objectives for the HKSARG in relation to the rail merger. We list them here in Table 1. The various objectives raised by officials across departments provide useful insights into how different government departments looked at different aspects of a merger, and whether and how a merger may be structured and implemented in order to achieve the objectives they noted.

⁷ HKSARG, 'SETW's opening remarks', press release, 24 February 2004.

⁸ Rothschild (2003) *KCRC/MTRCL Merger Feasibility Study*, abridged version, p.33.

⁹ A full report was submitted to the HKSARG on 12 August 2003 and it is not available to the public. Upon request from legislators of the Panel on Transport of the Legislative Council in February 2004, an abridged version was then made available to the public in April 2004.

Table 1: Government's Core Objectives in a Merger (Rothschild Report 2003)

Government Objectives
<p>Financial:</p> <ul style="list-style-type: none"> • Proceeds – maximize proceeds from any merger and extract them as early as possible. • Value – maximize the aggregate value of the HKSARG's investment in the railway businesses, including the impact of synergies. • MTRCL equity story – given its majority shareholding in MTRCL, the HKSARG has an interest in improving the listed company's growth prospects and equity story to maximize the value of its shareholding (and proceeds from potential future sell-downs). • Privatization – demonstrate the HKSARG's commitment to its Asset Disposal Programme. • Minimize financial support – a merger should not give rise to increased financial support for future infrastructure projects. <p>Transactional:</p> <ul style="list-style-type: none"> • Speed and simplicity – any transaction (and the structure chosen to facilitate such an exercise) should provide for a swift and simple execution process with low execution risk. • Retention of MTRCL listing – whilst the retention of MTRCL's listing is not a goal in itself, retaining a listing in any merger would secure the HKSARG's continued access to equity capital. • Post-merger operational efficiency – any decision on merger should be predicated on enabling the seamless operational integration of the two corporations. <p>Transport/Planning:</p> <ul style="list-style-type: none"> • Fare setting mechanism – a merger offers an opportunity to achieve a change, albeit within the confines of what MTRCL in particular will assent to. • Fare reductions – a merger may be an opportune time for the HKSARG to achieve (at least partially) its transport policy in relation to rail fares. • Passenger interchange – enables the two corporations over time to create more convenient interchanges for the travelling public. • Rail as transport backbone – enhances the competitiveness of railway corporations. <p>Social/Environmental:</p> <ul style="list-style-type: none"> • Minimize the extent of job reductions caused by any merger. • Environmental effects of bus competition – a stronger and more competitive railway should ease congestion and reduce pollution.

Source: Reproduced and adapted from Rothschild (2003) *KCRC/MTRCL Merger Feasibility Study*, abridged version, pp.8-9.

2. Brief History of the MTRCL

The idea of building a high-capacity mass transit system in Hong Kong can be traced back to 1967. The *Hong Kong Mass Transport Study*, commissioned by the Government in 1965, was completed that year with the recommendation of a four-line underground system to combat growing road congestion.¹⁰ Another government-commissioned *Hong Kong Mass Transit Further Studies* in 1970 proposed a modified four-line 'Preferred System' with a total length of 52.6 km and 48 stations.¹¹ The Government announced in 1972 that an 'Initial System' would be constructed, with a length of 20.2 km and 20 stations.¹²

In 1973, the Government entered into negotiations with four international consortia with the object of concluding a single contract for the construction and equipping of the Initial System. The contract was awarded to a Japanese consortium. The MTR Provisional Authority, a statutory body, was set up by the Government to continue negotiations. A Letter of Intent for a fixed price contract was signed with the consortium in February 1974. However, the original winner withdrew from further negotiations in December 1974. Within weeks, the MTR Provisional Authority called for tenders on a multi-contract basis for a shorter 'Modified Initial System' (MIS) which would run 15 km from Kwun Tong to Central with 15 stations.¹³

The Mass Transit Railway Corporation (MTRC) was established in 1975 under the Mass Transit Railway Corporation Ordinance (Cap 270) to replace the Provisional Authority, taking up responsibility for the construction and operation of the Mass Transit Railway (MTR). Although a statutory body wholly-owned by the Government, the MTRC was to be independently operated according to 'prudent commercial principles'. Under the Ordinance, the MTRC was responsible for fare setting.¹⁴ The first MTR line opened for business in October 1979.

Throughout the 1980s and 1990s, the MTR system has expanded gradually to serve most of Hong Kong's urban area (perhaps except for areas like Hung Hom and To Kwa Wan in Southeast Kowloon) and newly developed new towns (such as Tung Chung and Tseung Kwan O). In the process, the MTRC gained access to world debt markets and equity capitals for the finance of network expansion. This period of growth and exposure to international finance institution put the MTRC in a strong position for privatisation.

In March 1999, the HKSARG announced its plan to partially privatise the MTRC by listing and selling a minority interest in the Corporation. In February 2000, the Mass Transit Railway Ordinance (Cap 556) was passed into law by LegCo, providing the legal framework for the partial privatisation. By operation of Hong Kong law, the new Mass Transit Railway Corporation Limited (MTRCL) succeeded to the entire property, rights and liabilities of the MTRC on 30 June 2000. Under the Ordinance, the MTRCL was granted a 50-year franchise, effective from 30 June 2000, "to operate the MTR and to construct and operate any extension to the railway"¹⁵, subject to the terms and conditions contained in the Operating Agreement.

¹⁰ Freeman, Fox, Wilbur Smith and Associates, 1967, pp.65-71.

¹¹ Freeman, Fox & Partners, 1970.

¹² Gold, 1977; Hong Kong Government, 1980; Ridley, 1981.

¹³ MTRC, 1976.

¹⁴ Noble, 1993, p.186.

¹⁵ *The Mass Transit Railway Ordinance (Cap 556)*, Section 4.

The Operating Agreement, signed between the HKSARG and the MTRCL and governed by the laws of Hong Kong, contains detailed provisions for the design, construction, maintenance and operation of the MTR under the franchise. It covers a wide range of matters, including those related to fare regulation, future railway projects and performance requirements.¹⁶ Under the Operating Agreement, for example, the HKSARG acknowledges that a commercial rate of return on investment in new railway projects will be required by the MTRCL. Fare autonomy has been granted to the MTRCL, but the company has to consult the relevant government authorities and consider public opinion for any fare adjustment. With respect to the rail services provided by the company, certain performance requirements have to be met.¹⁷

The MTRCL was listed on the Stock Exchange of Hong Kong Limited (the Stock Exchange) on 5 October 2000.¹⁸ The HKSARG now owns 76.4% of the company. The railway network in 2004 today consists of two systems of six lines with a total route length of 87.7 km and 50 stations (see Figure 1). The first network system comprises the Kwun Tong Line (completed in 1979), Tsuen Wan Line (1982), Island Line (1985), Tung Chung Line (1998), and Tseung Kwan O Line (2002).¹⁹ The Airport Express Line (1998) which connects downtown Hong Kong to the airport is the second system. In 2003, the entire system carried 777 million passengers, representing a 19.7% market share.²⁰

¹⁶ MTRCL, 2000.

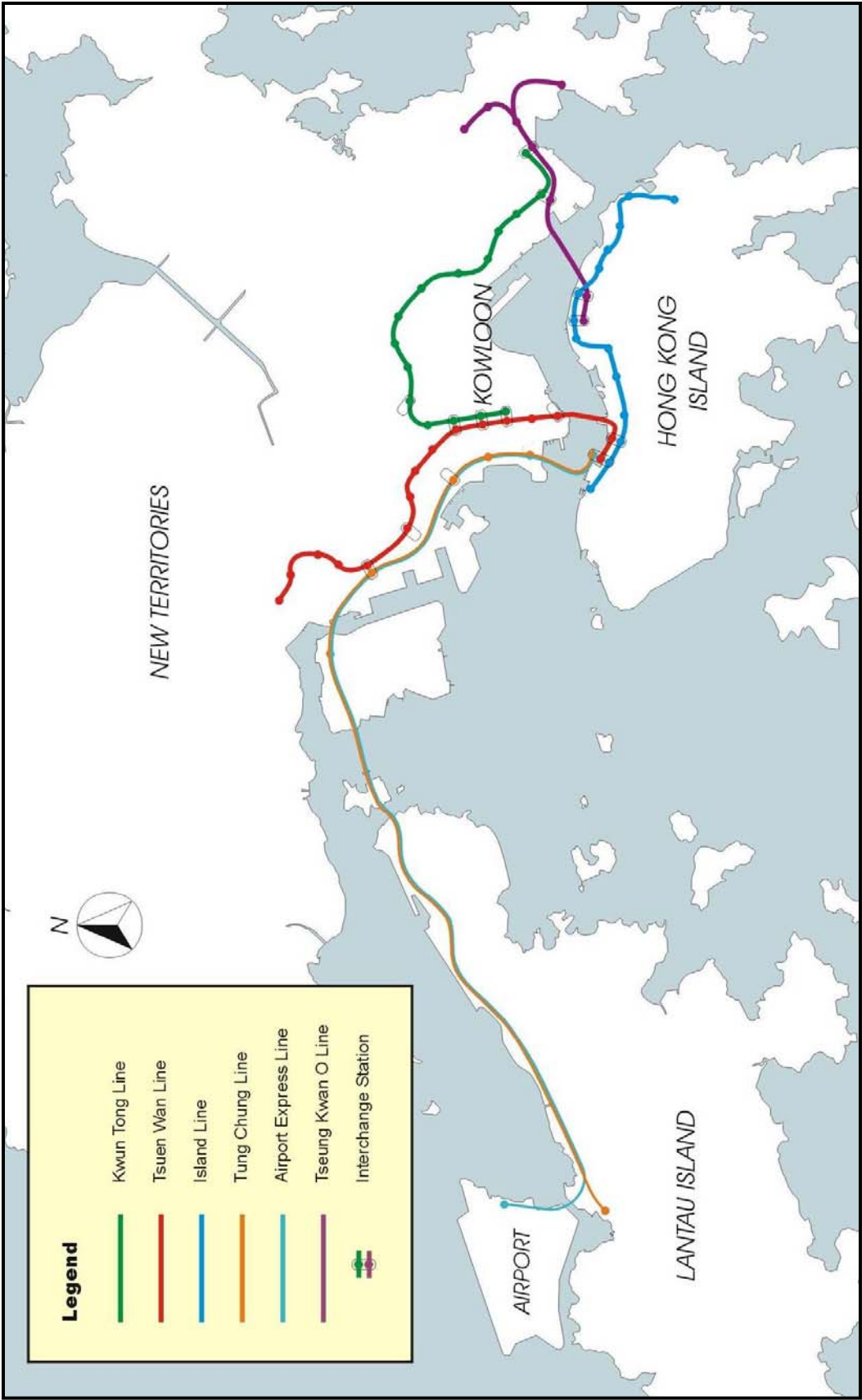
¹⁷ *Ibid.* These requirements cover areas like train service delivery, train punctuality, reliability of add value and ticket issuing machines.

¹⁸ Centre for Asian Business Cases, 2000.

¹⁹ The Eastern Harbour Crossing connecting Quarry Bay and Lam Tin, which is now part of the Tseung Kwan O Line, was completed in 1989.

²⁰ Transport Department, 2004.

Figure 1: The Mass Transit Railway System (November 2004)



3. Brief History of the KCRC

Unlike the mass transit system, which was originally designed to satisfy the growing internal transport demand and to ease traffic congestion in the late 1960s, the Kowloon-Canton Railway (KCR) was masterminded by the British Government in the 1890s to protect Hong Kong's position as the major transshipment port in Southern China.²¹

In 1898, the Qing Government allowed the British to build a railway between Hong Kong and Canton (now Guangzhou). In 1905, the proposed railway line was to split into two, with a Hong Kong section (formerly known as the British section) and a Chinese section, to be built and operated by their respective governments. For the Hong Kong section, which is known as East Rail today, construction began in 1906 and was completed in 1910. It was a single-track system with 9 stations running from the tip of Kowloon Peninsula in Tsim Sha Tsui to Lo Wu at the border, providing both freight and passenger services. For many years the railway was the major carrier of food supplies from mainland China to Hong Kong.

From the day of opening till the early 1970s, the KCRC's East Rail remained very little changed, except for the introduction of diesel electric locomotives in the 1950s and early 1960s. However, with population growth in the New Territories throughout the 1960s and the development of New Towns such as Shatin along the railway line, East Rail had to be upgraded to meet rising demand. A modernization programme started in 1973 with the first phase of double-tracking between Kowloon and Shatin. Subsequently, electrification was completed in two stages, in 1982 and 1983. From then onwards, the 35-km East Rail has become fully equipped to serve international goods and passenger traffic across the border, as well as to provide a fast and convenient suburban passenger service between Kowloon and the eastern part of the New Territories.

Another defining moment in the history of the KCRC's East Rail line came in 1982 when the Government decided to turn the railway from a government department into a public corporation similar to the MTRC. With the enactment of the Kowloon-Canton Railway Corporation Ordinance (Cap 372) in December 1982, the KCRC became a statutory body wholly owned by the Government to operate the rail system in accordance with 'prudent commercial principles'.

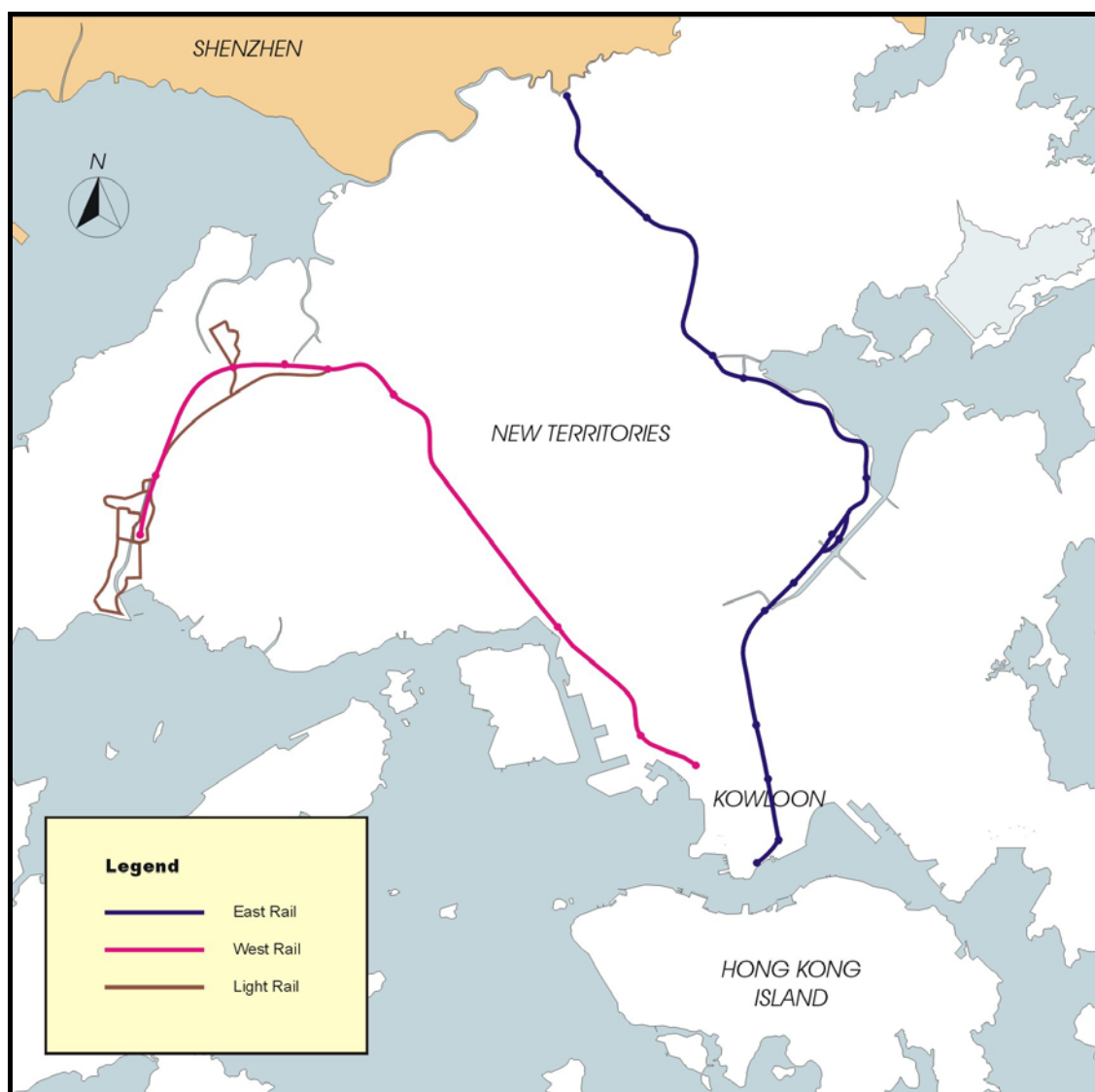
Since the late 1980s, the KCRC has also expanded into Northwest New Territories. In 1988, the Light Rail Transit (LRT) system was built to serve the Tuen Mun and Yuen Long areas. In December 2003, West Rail opened for service between West Kowloon and the Northwest New Territories. West Rail is a heavy rail system with a track length of 30.5 km and 9 stations, linking up with the LRT at 4 interchange stations in Tuen Mun, Yuen Long and Tin Shui Wai. It is also connected to the MTR system at Mei Foo of the Tsuen Wan Line and Nam Cheong of the Tung Chung Line. In 2003, the three rail systems (East Rail, West Rail and Light Rail; see Figure 2) together carried 386 million passengers, a nearly 10% market share of all public transport journeys.²²

²¹ During the 1890s, competition intensified between foreign powers to obtain concessions from the Qing Government. The construction of new railways and the development of new ports in other parts of China upset the balance of trade and diplomacy, threatening Hong Kong's trading position. In building the Kowloon-Canton Railway, Hong Kong was connected to the Peking-Hankow-Canton Railway, enabling it to remain the southern outlet for the trunk line. (Robert J Phillips, 1990, pp.11-13.)

²² Transport Department, 2004.

More recently, the extension of East Rail to Tsim Sha Tsui East was completed in October 2004. Ma On Shan Rail will open in December 2004, providing light rail service between Ma On Shan new town and Tai Wai. In the medium term, the Lok Ma Chau Spur Line linking Sheung Shui and Lok Ma Chau is targeted for completion in 2007. With the award of the Shatin-Central Link to the KCRC, Hong Kong's two major rail operators will compete head-to-head for passengers for the first time.

Figure 2: The Kowloon-Canton Railway System (November 2004)



4. Policy on Rail Development

Hong Kong's transport policy began to take shape in the late 1960s and 1970s, following the commissioning and completion of several major transport studies²³ and the first *Hong Kong Comprehensive Transport Study*. During that period, an administrative framework responsible for transport policy formulation and day-to-day transport operation and management was developed.²⁴ In 1979, the first White Paper on internal transport policy was published with the objective "to maintain and improve the mobility of people and goods".²⁵ Three guiding principles were adopted – the improvement of the road system, the expansion and improvement of public transport, and a more economic use of the road system – to guide Hong Kong's approach to the problem of congestion. An integrated, multi-modal transport system was to be developed and maintained. In this system, public transport was preferred over private transport, and off-street modes²⁶ were encouraged. In other words, both rail and buses have important roles to play.²⁷

A similar approach was taken by the Government in the second White Paper on transport policy published in 1990, after the completion of the *Second Comprehensive Transport Study* in 1989. The White Paper emphasized a 'balanced' network of public transport services operated by private companies or public corporations operating according to prudent commercial principles. The Government's role was to provide a regulatory framework and some degree of modal co-ordination. The community would derive maximum benefits through healthy competition between modes.²⁸ While railway extensions would be encouraged, new lines would only be built if they are considered financially viable. With this as the policy background, the *Railway Development Strategy* was formulated in 1994, providing a framework for the planning of Hong Kong's future railway network.²⁹

In August 1997, the HKSARG commissioned the *Third Comprehensive Transport Study* (CTS-3) with the objective "to provide a framework on which Government can develop a balanced transport strategy to facilitate the mobility of people and goods of Hong Kong in an environmentally sustainable manner up to 2016".³⁰ The CTS-3 final report acknowledged the limitation of simply building more roads as a measure to meet travel demand and its resulting adverse impacts on the environment and society. In order to keep Hong Kong moving in a sustainable way, CTS-3 recommended, among

²³ Including *Hong Kong Passenger Transport Study* (1964-66); *Hong Kong Mass Transport Study* (1965-67); *Hong Kong Long Term Road Study* (1966-68); and *Hong Kong Mass Transit Further Studies* (1969-70).

²⁴ Leung, 1993, pp.32-33; Transport Department, 1998, pp.50-55; Ng, Yeh & Hills, 2001, p.7.

²⁵ Environmental Branch, Government Secretariat, 1979, p.6.

²⁶ For example, railway and water-borne transport.

²⁷ Given the road conditions in the 1970s, the Government's key objectives were to restrain certain types of road users such as public light buses, taxis, motor cycles, private cars, and goods vehicles; an additional aim was to shift private transport users to public transport by providing passengers a choice between modes. The MTR was expected to carry a quarter of public transport passengers by 1986, whereas franchised buses would remain the major road-based mode and carry close to one half (Environmental Branch, Government Secretariat, 1979). Compare Figure 3 on page 12.

²⁸ Transport Branch, Government Secretariat, 1990, p.25.

²⁹ *The Railway Development Strategy* was derived mainly from the findings of the *Railway Development Study* – a government commissioned study. It provided a prioritized list of recommended railway projects based on Hong Kong's future transport needs, the ability of each project to relieve critical transport corridors, economic benefits and financial viability of the project, and the project's benefits to land use development (Transport Branch, 1994).

³⁰ Transport Department, 1999, p.i.

other things, that railway should form the backbone of Hong Kong's future passenger transport network. A hierarchy of public transport modes was outlined, with heavy rail system at the top, to be followed by light rail system and buses, and the other modes largely supplementing them.³¹

Subsequently, the *Rail Development Strategy 2000* (RDS-2000) was formulated to provide a framework for railway expansion up to 2016.³² Upon completion of the railway projects recommended in RDS-2000, Hong Kong's rail network would increase by 70% to some 250km, with more than 70% of the population and 80% of the employment falling within a rail catchment as very liberally defined.³³ The market share of rail was projected to reach about 45% in 2016.³⁴

5. Rail Financing Model

Despite these latest transport plans that accord a greater role to rail in the future, there is little sign that the HKSARG is preparing to change the way railways are financed in Hong Kong. The rail operators are still required to self-finance their new lines and to provide a commercial return on their investments, with no direct government support. This is unique in the world: the common practice elsewhere is for the government to substantially cover the cost of construction and often a portion of the cost of rolling stock (see Chapter 3).³⁵ Rail corporations in Hong Kong, like the MTRCL, have however received indirect support in the form of property development rights above and near its stations. Under this arrangement, the rail corporation can capture the difference in the value of the site, with and without the rail. Such support may be viewed as a means of allowing the MTRCL to 'internalize' a portion of the external property value increases it generates. Broadly, the property development rights account for about 10% of all income the Corporation receives.^{36, 37}

In Hong Kong, the market share of rail has grown tremendously from just 1% in the pre-MTR year of 1978 to 30% in 2003 (Figure 3). The two rail corporations are among the few operators in the world that earn unsubsidised fare revenues sufficient to cover operating costs and depreciation, and still make a profit. Such an achievement is only possible because of Hong Kong's extremely high urban density and the restriction of

³¹ *Ibid.*, pp.16-17. Heavy rail is placed at the top for its capability of carrying large number of passengers at low marginal cost, and its low adverse environmental impact.

³² Transport Bureau, 2000, p.1. *Rail Development Strategy 2000* was based on findings of the *Second Railway Development Study* which was completed in early 2000.

³³ The HKSARG uses a 1-kilometre radius from a station as the walk-in catchment. In a survey of mass transit rail systems around the world (Barron, Ng, and Kwok, 2001), it was found that all other systems use a definition of one half kilometre or less. The MTRCL itself uses a 400-metre walk-in catchment, with allowances made if there is a substantial change in elevation. In other words, when the HKSARG gives the figure of X% of the population being within 1 kilometre of a rail station, it is implicitly assuming that all those living between about 400 and 1,000 metres from the station have access to convenient feeder service. *The validity of this assumption should be demonstrated.* The point is that the HKSARG's claims about a high proportion of the population having convenient access to a rail station is potentially quite misleading and should not be accepted at face value.

³⁴ HKSARG, 'Secretary for Transport spoke on transport policy objective', press release, 26 October 2001; HKSARG, 'Railways: the backbone of Hong Kong's transport system', press release, 3 May 2000.

³⁵ Barron, Ng, and Kwok, 2001.

³⁶ It is however, the factor that allows the MTRCL to show a profit.

³⁷ This figure is broadly indicative of the scale of the indirect government support and should not be interpreted in a strict accounting sense.

most new lines (at least up to 2003) to very densely populated areas. The limiting of rail to areas of only the highest density, along with the property development model, has proven to be a winning financial formula.³⁸ Yet, as noted below there are serious problems with this financing model. A close look at some of the negative implications is long overdue.

Hong Kong's railway network is skeletal when compared to other world cities like London and New York City (Figure 4). In principle, a skeletal network leaves plenty of room for expansion. In practice, however, the self-financing requirement makes expansion beyond the most densely populated parts of Hong Kong financially infeasible. Tseung Kwan O is probably the last piece of developed land in Hong Kong that can generate a minimum expected daily ridership of 30,000 to 70,000 passengers to justify a new rail station using the current financing model. With the downward adjustment of population forecasts, chances of finding another highly densely populated area in order to build a financially attractive line are virtually nil.³⁹

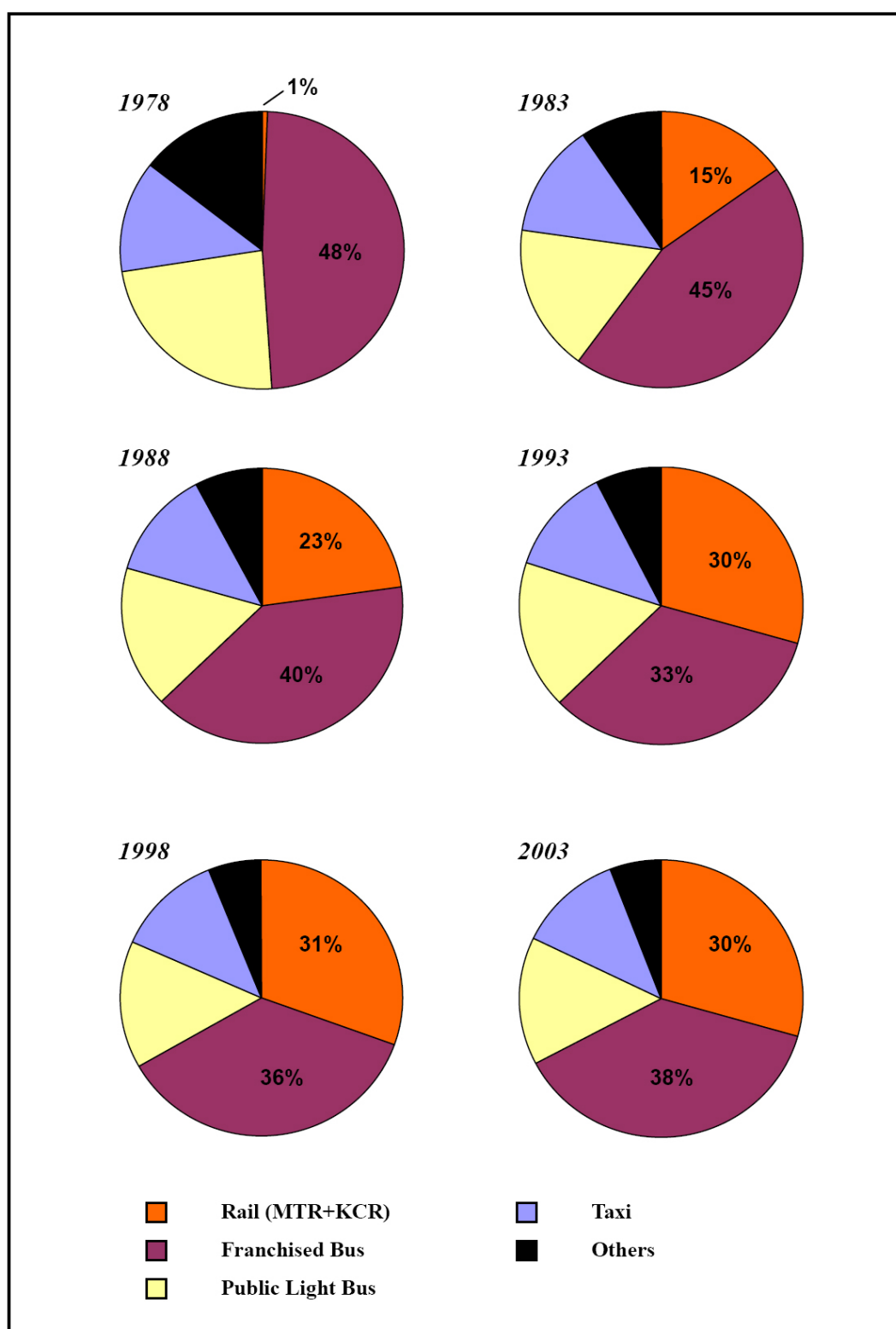
It is also uncertain if property development rights will again be granted to rail operators as a form of indirect government support. In the past, development rights to such parcels of land were granted in the belief that planning advantages could be maximized through integrated design between the railway and the property development. On the one hand, property development profits contributed significantly and directly to the rail corporations' funding requirements (the MTRCL in particular). On the other hand, development above or adjacent to rail stations brought more passengers to the railway. Following the 1997 Asian financial crisis, Hong Kong's economy took a downturn. The property market also plummeted by some 60% in some areas, which cut back the rail corporations' earnings from property development.⁴⁰ Worse still, for the continuation of this funding model, land developers began to complain about the impact of the rail corporations' uncoordinated supply of flats on the property market. Coincidentally, the HKSARG stopped granting property development rights to the two rail corporations as of mid-2002.⁴¹

³⁸ MTRCL, 2004, p.5.

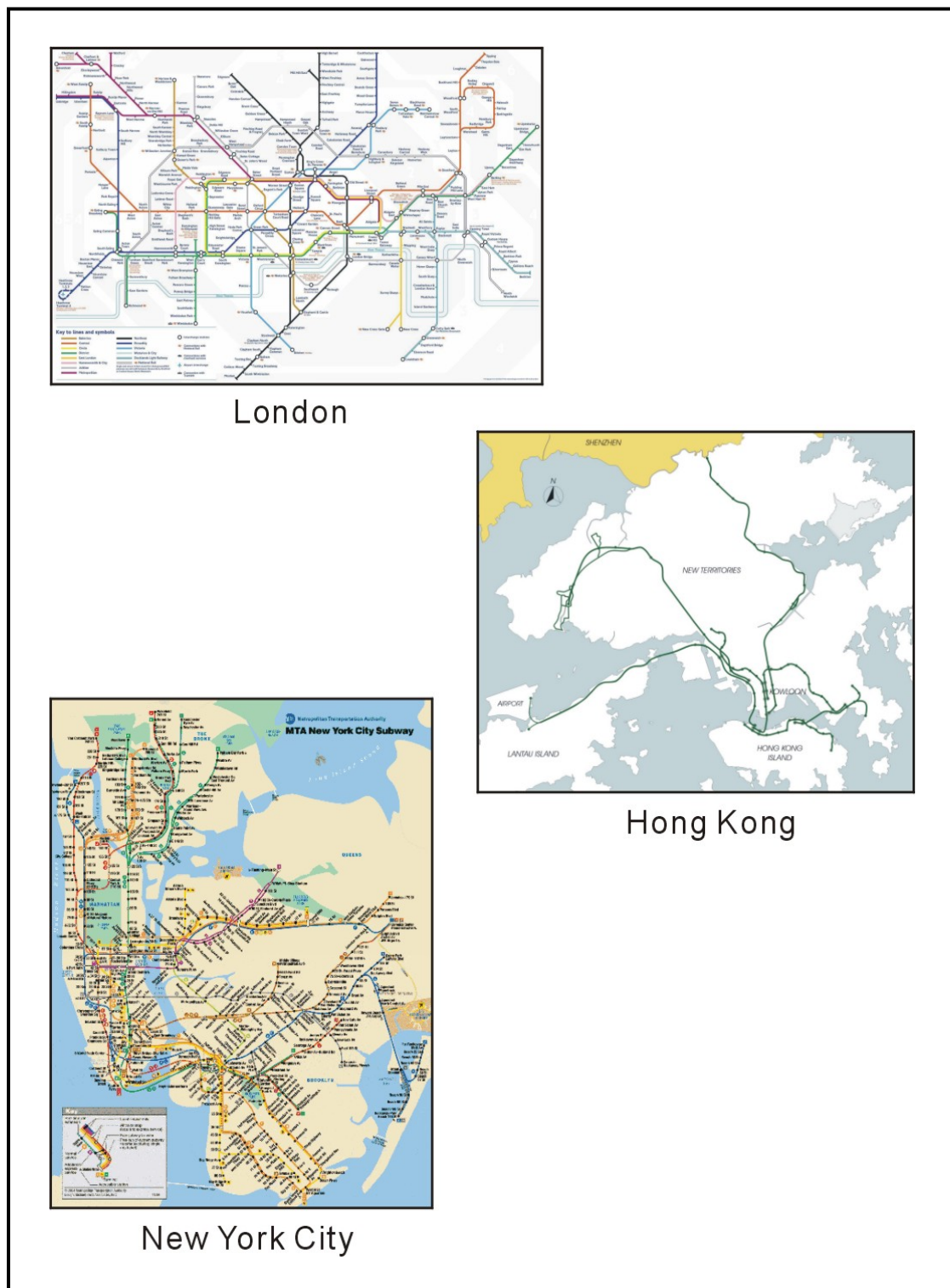
³⁹ Hong Kong has traditionally managed to make its railways largely self-financing by restricting them to largely areas of extremely high population density (highest in the world); in the context of very high population growth and high property prices, the old MTRC financing mechanism provided opportunity for occasional extensions. However, each rail system expansion since Tseung Kwan O, such as Disneyland Resort Line (formerly the Penny's Bay Link), West Rail and Ma On Shan Rail, involved some form of ad hoc adjustment to the funding mechanism.

⁴⁰ Howard Winn, 'Hong Kong's urge to merge', *Far Eastern Economic Review*, 10 June 2004.

⁴¹ SCL was awarded to the KCRC without granting any property development right.

Figure 3: Railway's Share in Public Transport Market (1978-2003)

Source: HKSARG (various years) Hong Kong Annual Digest of Statistics

Figure 4: Urban Rail Network of Selected World Cities

Sources: New York City Transit (<http://www.mta.nyc.ny.us/nycct/maps/submap.htm>);
Transport for London (<http://tube.tfl.gov.uk/content/tubemap/default.asp>)

6. Government's Notion of 'Competition'

The HKSARG's belief that 'healthy' competition would bring the most benefits to the travelling public has often backfired. The value of competition lies primarily in two things:

- The pressure it puts on providers of goods or services to offer the highest value for money to prospective customers, and
- Greater choice for consumers, to the extent that providers have incentive to differentiate their products.

In assessing whether competition is always necessarily for the best, policy-makers need to consider whether the particular case at hand serves either or both of the above purposes. Competition between the MTRCL and the KCRC arguably does not meet either criterion.

For the most part, the two rail companies do not compete for passengers from the same stations. Rather, they generally serve different catchments. Where MTRCL and KCRC are competing, they are competing for the same riders at interchange stations. If they remain as two entities, it can be expected that they will compete to take riders from each other, where the competition would not generate either one of the two results mentioned in the foregoing paragraphs. The incentive each has is to keep passengers on its own system, rather than have them transfer to the other. In effect, the aim is to limit choice and hence is anti-competitive in its spirit.

Additionally, excessive competition between transportation systems leads to upwards, and not downwards pressure on prices. Too many vehicles competing for the same pool of passengers will only lower the average load factor and increase the average cost of service, as each system raises prices to make up for the loss of passengers to the other system (see Chapter 3).

Wasteful competition does not only take place between railway and franchised buses but also between the same modes. In the recent SCL saga, for example, KCRC was awarded the project because they put together a proposal that attracted more passengers, set a lower fare, generated higher returns on investment and required zero government funding support, all at the expense of cutting into the MTRCL's cross-harbour passenger base. This will in turn affect MTRCL's financial performance and the shareholder value.

Thus, in considering the rail merger, the HKSARG seems to have already concluded that it would be undesirable for the two rail corporations to compete for the same pool of riders. This is correct. A key question explored later in this report is how the HKSARG will regulate rail and road transport to implement effectively its declared policy that rail should provide the backbone of the public transport system in Hong Kong. Currently, that declared policy, which is the right policy to adopt for this city, has in fact not been achieved. However, before considering these broader issues, it is important to examine the implications of the MTRCL's private shareholdings on the way a merger may be financed. We do this in Chapter 2.

CHAPTER 2: EQUITY HOLDERS' PERSPECTIVE

From the perspective of MTRCL's equity shareholders in the market, the fundamental concern (requirement) with respect to a merger of the MTRCL and KCRC is that the basic conditions promised by the HKSARG in the MTRCL's initial listing be maintained. In other words, that the MTRCL will purchase the KCRC at a price whereby this expansion of the MTRCL's existing business, provides equity holders a Weighted Average Cost of Capital (WACC) plus 1% to 3%.⁴²

Unfortunately, this requirement could be difficult to achieve in light of several factors:

- The KCRC has (or has almost) completed West Rail and the expansion of East Rail, both of which will be loss-making for the foreseeable future;
- Population growth is slowing considerably and densities in new areas are declining somewhat. With few if any untapped areas of extremely high density, railways cannot rely solely on the past mechanism for determining the financial feasibility of a new rail line;
- The developers have a considerable 'landbank' around the new KCRC rail lines,⁴³ providing competition for KCRC's own prospective developments along the lines; and
- The HKSARG is not being proactive in promoting rail-based public transport over other road based public transport.

The fact is that railways are rarely fully self-funding, but they are built because much of the benefits they generate are *external* to the finances of the agency which collects the passenger fares. The issue of external benefits is discussed more fully in Chapter 3. Even if the depreciation of rail infrastructure were to be spread over 100 years, this would doom any chance the railway has of making a return on book capital appropriate for the equity market. In other words, railways, like some other types of major public infrastructure, require non-market considerations with respect to their financing.

The MTRCL-KCRC merger, if it goes ahead, will presumably happen in the near future. If so, the merger would occur in a very favourable low interest rate environment. However, the MTRCL and KCRC have relatively high levels of debt gearing (in a Hong Kong context),⁴⁴ which raises further concerns over the viability of the merger in the face of any possible rise in interest rates. A rise in interest rates would negatively affect the share price of all highly geared companies since a major component of their cost structure goes up. Indeed, despite the fact that much of the debt of the MTRCL and KCRC is at fixed rates, the share price is still likely to under-perform compared to those of lower geared listed companies. Put another way, the current interest rate environment is about as good as it gets for the two railway companies in terms of a major part of their costs. Yet, even so, it is difficult

⁴² See investor presentation and initial prospectus of the MTR IPO.

⁴³ The major developers in Hong Kong own in excess of 70 million square feet of agricultural land which they plan to convert/re-zone to residential use over the coming years. Much of this 'landbank' was amalgamated near new transport links where developers rightly saw a major potential for an increase in value.

⁴⁴ Gearing is defined as the value of net debt of the corporation divided by the value of the equity.

to make a merged entity sufficiently profitable to equity holders.

It should be noted that the original financing goal for the railways was not to provide an economic return on book assets. Rather, the most important goal was the positive external benefits railways provide to society. The aim of the particular financial arrangements set up for the MTRCL and the KCRC was to enable them to be effectively self-financing – the revenue streams from their railway businesses and property arms allowed them finance the debt they took on to build the assets. The MTRCL in particular, has received important, but limited, economic benefit from the improvement in land value they created by providing rail access.⁴⁵

The reason the MTRCL was able to be listed at the valuation it achieved, was due in part to its accounting policies. It had sold the development rights over the airport railway stations at exceedingly good prices pre-1997 with a large component of cash coming to it upfront. The MTRCL did not, however, book the profits from these sales until the properties were completed, which allowed three years of massive profits to be booked, despite the profits being effectively non-cash. The MTRCL had HK\$5 billion of deferred profits on its books at the end of 2003.⁴⁶ Furthermore, the completion schedules of the properties tended to be in December and January so that the property arm could choose which year to book profits and thus ensure a smooth profit stream from year to year.

The valuation was also due to the healthy rail usage forecasts at the time (i.e., with the then current HKSAR population growth projections). Furthermore, investors looked favourably on the Corporation's long term property business arising from Tseung Kwan O development.

The favourable response to the listing suggests that the equity market had trouble seeing through the profit numbers to the underlying value of the assets of the company. When the MTRCL runs out of these abnormal profits (in the coming 1-2 years), the underlying, more modest, profitability of the company will become evident. One caveat, however, is that the recent run up in property prices will help both corporations' profit outlook in the short term.

It seems clear that one way or another, the HKSARG must get 'the assets' that are being depreciated (i.e., the rail lines) off the balance sheets of both companies. In reducing the asset base they will also reduce the depreciation cost being booked. This will enable the rail companies to provide a more appropriate return to the equity investors in the merged entity.

To put this in perspective consider how 'profitable' bus companies would appear to be, if they had to depreciate their share of the cost of the roads they use. They would have their share of the value of the road system and bus lanes in their accounts as fixed assets and would need to explicitly charge customers for the amortized cost of road construction and maintenance. This would require generating a far higher return (to offset the depreciation 'costs'). Alternatively, the 'value' of the roads might be written down to something quite low, thus obviating much of the depreciation charge. This would allow the bus companies to generate a lower return and still book acceptable profits.

⁴⁵ The MTRCL has been able to capture the added financial value of properties directly over or very close to stations, while those more extensive values created in adjacent locations have remained external, being captured by private interests or the public at large.

⁴⁶ MTRCL, *Annual Report 2003*.

There are four basic ways to do this:

1. *Write down the value of the assets*

- This is the simplest solution and, as such, the best.
- The KCRC should be sold to the MTRC at a price such that its assets, post-depreciation, yield WACC plus 1% to 3%.
- West rail is forecast to provide HK\$850 million in depreciation in addition to the HK\$750 million KCRC reported last year. Most of the HK\$750 million is derived from rolling stock and similar equipment, and is therefore difficult to avoid. Much of the additional HK\$850 million in the upcoming year will be from the lines themselves. With the Ma On Shan extension to add to that depreciation burden, and the fact that HK\$1.2 billion of capitalized interest will start being booked in profit and loss, the KCRC is likely to run at a loss in the coming years (except for property sales). This is despite the fact that their cash flow is likely to improve as their CAPEX⁴⁷ shrinks considerably, and land sales start to contribute and passenger revenues improve.
- The only solution is to take a one off 'hit' on the value of the assets to reduce the depreciation burden. Reducing the value of the 'assets', lowers the level of depreciation, thus increasing the profit level. While this is purely an accounting exercise, it is likewise true for the current 'value' of the assets as recorded on the HKSARG's balance sheet.
- There is possibly between HK\$30-35 billion in fixed assets that could be written off so as to get the depreciation down to levels that would make it easier for the MTRCL to absorb the KCRC.⁴⁸

2. *Buy-out minority shareholders of the MTRCL, restructure assets and re-list the company*

- At HK\$13.00 per share, a level that provides an appropriate premium to the market at which investors are likely to sell, a privatization would cost approximately HK\$16.3 billion.
- However, it seems unlikely that the HKSARG would spend this much cash on a 'merger', since it will be difficult to convince the market of the appropriateness of a listing followed by a 'privatization' to create a structure for a new listing.
- In addition, the MTRCL's minority shareholders would rightly demand a considerable premium to the net assets of the company, as common in similar market capitalizations, and privatizations. Yet, politically, it would be difficult to purchase the assets back at more than they are seen to be 'worth'.

⁴⁷ CAPEX is short for 'capital expenditure', that is money spent to upgrade or maintain assets. This is distinct from costs incurred to directly earn a profit (e.g., platform doors at stations to reduce air conditioning costs.).

⁴⁸ Estimates based on data in the KCRC/MTRCL annual reports.

3. *Follow the Singapore model – HKSARG buys back the infrastructure and the MTRCL and KCRC act as operating entities*

- In the first instance, this would require a considerable re-negotiation of the debt structures of both corporations and the equity component of the MTRCL.
- This would likely also require some form of operating Scheme of Control to ensure that an adequate amount of maintenance capital expenditure occurs to avoid the situation seen increasingly in the United Kingdom, where low maintenance spending on the rail lines following privatization has been blamed for the increasing unreliability of the services being provided.
- As the HKSARG appears to be moving away from Schemes of Control for the power companies, it is unlikely that they would re-implement one with the railway operators. Hence, it is unlikely that the HKSARG would be willing to take on the rail assets and 'pay' for them. Re-organising the property development rights for the two corporations – the source of revenue that was expected to pay for the rail lines – while the HKSARG owns the infrastructure would put further pressure on the approval process for new lines.

4. *Realising property to help railway assets*

- This would allow the MTRCL to book a profit on the property sale to counteract a write down in its assets (to reduce the ongoing depreciation burden) and would allow the HKSARG to retain control of the 'landbank' of development rights and sell the investment property rights off as a real estate investment trust (REIT).⁴⁹ Of course, the write down would have to be significant enough so that the remaining on-going fixed asset depreciation was reduced to a level that the MTRCL finds manageable.
- The issue here is that the rail lines should be able to 'internalize' (i.e., capture for themselves in monetary terms) some of the economic benefit they provide to the communities for which they improve transport links. More importantly, it appears likely that many MTRCL equity holders bought shares for the dual purpose of having exposure to property and a railway. A hedged property play with the stable cash flow (not profit) of the railway is counteracted by the volatility of the property market. To take away the property will clearly change the nature of the investment.
- As the property market has recovered strongly recently, there is a reduced need for the HKSARG to control land sales as tightly.
- Indeed, it may well be less politically sensitive for the railway corporations to be selling land at inflated prices, in lieu of the HKSARG selling land at high levels and then providing more direct subsidies to the railways.

⁴⁹ REIT is real estate trust fund along the same lines as The LINK REIT (the listing of the Hong Kong Housing Authority's retail and car park assets). Under a REIT structure, management must pay perhaps 90% of income to shareholders, making it something between a share and a bond.

- Again, it would appear unlikely that the HKSARG would take the approach of a 'property for KCRC swap'.

Reviewing the Four Options

The first option is the preferred option. There are a number of issues to consider:

- The cost of the lines (which is how the assets are valued) is an irrelevance. If the market is reasonably efficient, what matters is the cash flow – which should be the driver of equity value. Even if the equity market is not fully efficient, medium term booked profits will be higher due to the lower depreciation (as the assets have been re-valued lower). But there will be a massive loss booked in the year of write off.
- This loss may be counteracted by a relatively cheap price for the KCRC to be paid by the MTRCL.
- It should be noted that if international profit reporting is to be introduced into Hong Kong, profit and loss numbers will become highly volatile as changes in the market value of the rail company's investment properties have to pass through the profit and loss statement. In effect, the huge swings in property values will have to be included in the profit and loss, whether or not the properties are actually bought or sold. This should make shareholders increasingly immune to swings in profit numbers and thus focus investors - and thus stock valuations – on cash flow.
- The merger will have to be conducted through a share swap and it is likely that the MTRCL does not have enough cash to buy the KCRC. Hence, the HKSARG's shareholding in the MTRCL would rise above 75%, depending on the price to be paid for the KCRC – leading to a requirement for another sell down so as to avoid breaching the listing rules.
- Managing the public relations process could prove quite difficult. Getting the public to understand and accept the need of a massive write down in an 'asset' from its accounting value to its economic value would be difficult. A clear and simple public information campaign on the external benefits of rail and the external costs of road development would be useful as it will show that the returns for the HKSARG's expenditure extend beyond a profit and loss statement.
- The HKSARG will have to provide an incentive to the minority shareholders of the MTRCL to maintain their confidence, considering the sales pitch it made in the initial listing.

A major constraint on any of the above asset reduction methods might be found within the specific detailed requirements of the covenants in the Corporations' lending documents. It may be that some of the debt which either of the corporations has taken on requires the assets of the company to be maintained above a certain level. If so, and should the assets be written off, there may be the requirement for a loan to be paid back early. The last thing anyone wants is to trigger any debt repayment.

Bearing in mind that the final figures for these arrangements are unlikely to be known until the full accounts of both Corporations are known, it is still difficult to determine the precise details of such a merger.

If it is assumed, for example, that the KCRC's net asset position is written down to HK\$26 billion for the merger, this would allow MTRCL, with net assets of HK\$57 billion to maintain control of the listed company. This is likely to be important, since the MTRCL has experience with the listed markets and has built up a solid reputation as a manager. However, even at an investment of HK\$26 billion, their profit from last year (2003) represents a return on investment of only 4.6%. This level is likely to be below the WACC plus 1% to 3% required by the MTRCL shareholders. This also would suggest that the property rights will have to remain with the rail companies.

CHAPTER 3: BROADER CONTEXT FOR MERGER EVALUATION

1. Transport in the City

It would be simplistic and unwise to evaluate the proposed merger of the MTRCL and KCRC by looking only at whether their managements and operations can be combined in a way acceptable to equity investors. These are, wholly or largely, public corporations providing essential public services. Hence, an assessment of the merger should take into account whether it helps the HKSARG to implement its stated policy of providing rail-led transport, which the HKSARG acknowledges would provide the greatest overall benefit to the community.

Rail

Railways are capital-intensive. When heavily utilized, they provide low cost, reliable, and environmentally-friendly urban passenger transport. In many respects such service is far superior to road transport (e.g., reliability, speed, environmental damages). Yet, railways are expensive to build. They are *fully* financially viable only where there is sufficient demand to keep the average cost of service down to acceptable levels. Unfortunately, strict compliance with this criterion would so severely restrict the coverage of rail networks that they could not play a sufficiently large role in providing adequate mobility in modern cities.⁵⁰

So why not simply let the market function? In other words, if a rail line is not fully financially viable, why build it? The answer is that many of the benefits railways provide – while quite important to society at large – are ‘external’ to the operator’s finances. For example:

- Greater willingness to pay for property with rail access;
- Reduced loss of scarce land and coastline to be given over to roads and their setbacks;
- Reduced travel time;
- More predictable travel times; and
- Much lower air pollution and noise.

While the rail provider may not be able to capture such benefits (and so offset rail’s high initial investment costs), such benefits are captured by the community at large. In order for the community to capture and enjoy these external benefits, it is common in major cities around the world for the public sector to provide supplemental support for railways.⁵¹ Such support may come in quite different forms, including the following:

⁵⁰ Relatively strict adherence to this criterion in Hong Kong has resulted in an urban passenger rail network that is skeletal compared to those of all the other ‘world cities’ despite Hong Kong’s far higher densities compared to such places as London, Paris, New York, or Tokyo. See *Figure 4 on page 13*.

⁵¹ Barron, Ng, Kwok, 2001. See also Chapter 1.

- Public equity capital injections at terms more favourable than what the private market is willing to offer;
- Public shareholders (i.e., the government) foregoing dividends for a particular line as a way to make an otherwise unprofitable line financially feasible,
- Allowing the rail provider to capture a portion of the property-related external benefits its lines generate (i.e., higher property values near its stations),⁵²
- Direct government grants for a portion of system costs (e.g., all or a portion of costs of new line construction); and/or
- Loan guarantees (to obtain lower interest rates on borrowed funds).

While the Hong Kong government uses the above methods on an ad hoc basis, the overall level of public sector support (of all forms) to railways in Hong Kong is quite low by international norms.⁵³

Another important form of indirect support to railways (though one not always recognized as such) is through overall transport planning and management. The broadest form of this is the coordination, to some degree, of road and rail transport, so as to encourage higher patronage (and hence lower average costs) on the rail network. However in Hong Kong, the Government has favoured competition to the virtual exclusion of coordination (see Chapter 1).

Application of any of the above support options (or others) will vary depending on circumstances, including the power of various special interests and the extent to which the major rail and road public transport systems are privately owned or managed.

Road Transport

Governments around the world have long-funded the construction or up-grading of roads to better accommodate motorized vehicles.⁵⁴ In the case of roads, the full cost of building or upgrading them typically comes directly from the public purse, with the public owning the roads and being responsible for their upkeep.⁵⁵ Duties and fees (e.g. fuel tax, licensing/registration fees) are typically collected, but often, as in Hong Kong, the revenues are treated as general revenue and are not specifically designated to help defray the costs of the roads.

For both rail and road, public subsidies come in recognition of the benefits of facilitating the movement of people and goods within a large, and often dense, urban area. In Hong Kong, such support has been indirect. The value of the indirect

⁵² This approach was long favoured in Hong Kong and variations on it are receiving considerable attention around the world. For an overview, see Smith and Gihring, 2004.

⁵³ Barron, Ng, Kwok, 2001

⁵⁴ Road widening, straightening, steps such as removing covered pedestrian walkways in dense urban areas to improve sight distance for buses, and land lost to setbacks from major roads required for facilities catering to 'sensitive receivers' (e.g., hospital patients, school children) are indirect costs imposed on Hong Kong people to accommodate motorized traffic. We might ask if Hong Kong would have a more pleasant pedestrian environment if the covered walkways had not been eliminated for the sake of improving visibility for bus drivers.

⁵⁵ Funds from road users (e.g., fuel taxes, vehicle licensing/registration fees) may or may not be dedicated to deferring the cost of the roads. In Hong Kong they are not.

support in the form of property development rights over or near its stations is equivalent to about 10% of the MTRCL's revenue.⁵⁶ The comparison of the value of property development rights with revenue is intended simply to illustrate the scale of its importance to the rail company and should not be interpreted in a strict accounting sense.

In a different arrangement, the HKSARG indirectly supports franchised bus operations by excluding the bus companies from paying fuel tax and substantial licensing/registration fees required of all other road users. In 2003, the value of the fuel tax savings amounted to about 5% to 13% of the revenue of Kowloon Motor Bus (KMB) in 2003.⁵⁷ Savings on the first registration tax and annual licensing fees add a modest additional benefit. As noted for the MTRCL above, comparison of the benefits in the form of avoided fuel and other road use taxes is intended simply to illustrate the scale of its importance to the bus company, and should not be interpreted in a strict accounting sense.

Hence, it can be said that the level of indirect government support for the MTRCL and for the franchised bus operators are of roughly similar levels with respect to impacts on revenue, in the absence of the temporary concessionary rates for ultra low sulphur diesel fuel (which are available to all diesel users, and not only franchised buses).⁵⁸

The matter of whether the approximate levels of support are appropriate in large part turns on the external benefits associated with each mode. Buses, clearly offer considerable external benefits over other modes of road transport (e.g., in raising the carrying capacity of the road network by carrying more passengers per vehicle than other modes of road transport) and in producing less pollutant emissions per passenger kilometre travelled. Yet, rail's external benefits in both regards are higher still.

In addition, there is the issue of the practicality of continuing to build ever more roads in a high density place such as Hong Kong and the opportunity costs of any such roads.⁵⁹

New road projects should be evaluated against rail not only by taking into account the cost of the construction and maintenance of the roadway itself, but also at the lost revenue the land could have generated. In the case of coastal roads, we must take into account the forgone amenity benefits of that shoreline.

⁵⁶ See Barron, Ng, and Kwok, 2001.

⁵⁷ Estimated by the authors from data in the *KMB Annual Report 2003* and information in email personal communications from John Chan, Managing Director, KMB on 26/10/04 and 27/10/04.

The difference in the level of significance depends on whether one takes the current (temporary) savings of \$1.11 litre on the concessionary duty rate on ultra low sulphur diesel or the normal tax of \$2.89 per litre of diesel fuel.

⁵⁸ KMB is one of several franchised bus companies in Hong Kong. However, since it accounts for roughly two thirds of all such operations, reporting on KMB covers the majority of such bus services in Hong Kong. Likewise, the KCRC along with the MTRCL provide heavy rail service to passengers. However, the MTRCL carries nearly three fourths of all heavy rail passengers in Hong Kong.

⁵⁹ The land given over to surface or elevated roads is land that is not available for other uses. Hence, when a surface or elevated road is constructed, society *foregoes the opportunity* to use that land for other purposes. In addition, due to the noise and pollution generated by road traffic, setbacks (spaces between roads and adjoining areas) are also lost to other purposes except perhaps as unpleasant pedestrian corridors.

The Rail Merger in Context

It is against this backdrop that the potential merger of the MTRCL and KCRC should be evaluated. In brief, the issue is not only the merger itself, but rather, how the merger (and its terms) affects the overall transport system in Hong Kong.

Of particular importance is the impact of the proposed merger on rail's ability to effectively compete with (and provide an attractive alternative to) road transport. In Hong Kong, this discussion takes place within a setting of the private management of transport service providers and their (full or partial) private ownership. In other words, while the public interest is overriding, careful attention must be paid to the interests of the private shareholders in the firms providing transport services.

One advantage of this private participation is, of course, that Hong Kong is unlikely to suffer from the problems of pervasively poor public transport services experienced in so many places with strictly government ownership and management of the transport systems. A similar situation may arise in cases where there is habitual heavy-handed interference of private transport operators by the public sector.

Nonetheless, this benefit comes at a price: the requirement that the combination of i) patronage revenues; ii) other commercial income (e.g., advertising); and iii) public sector support in total provides an adequate return to private investors (both equity and debt holders). Furthermore, given the long-term nature of investments in capital-intensive systems, the context for investment must be reasonably predictable and not subject to ad hoc political interference in decision-making (e.g., with regard to *where* or *when* a new line is built). These issues are discussed below.

2. Rail-led Transport

As made clear in the CTS-3,⁶⁰ if Hong Kong is to solve its problems of growing congestion and chronically high street level air pollution,⁶¹ Hong Kong must shift a greater proportion of its public transport journeys to rail. As the population continues to grow (albeit at a slower rate than projected in the late 1990s), Hong Kong must gradually increase the proportion of off-road (rail) travel in order to: i) maintain a reasonable level of mobility; ii) make it safe to breathe the air at street level; and iii) capture other external benefits such as increased property values.

The effect of an MTRCL-KCRC merger (and its particular terms) on the ability of the rail system to effectively play a larger role is of paramount importance. Resulting opportunities for cost savings and fare reduction are also clearly important, particularly as they would probably affect public support for the merger.

⁶⁰ Transport Department, 1999.

⁶¹ The specific Air Quality Objectives on which the Hong Kong Air Pollution Index (API) is based are arguably too weak on certain important pollutants (e.g., very fine particulates [PM₁₀ versus PM_{2.5}] and Ozone [1 hour maximum versus an 8 hour average]). However, even by the current relatively weak standards, air quality at street level in Hong Kong remains poor on most days. For a summary of the issues, see Civic Exchange's report *Air Pollution: Air Quality Management Issues in the Hong Kong and the Pearl River Delta Region – Civic Exchange White Paper*, <http://www.civic-exchange.org/publications/2004/airpollutionwhitepaper.pdf>, November 2004.

3. The Inefficiency of Separate Rail Systems

The inefficiency of having two separate rail operators is illustrated by the competition between the MTRCL and KCRC for the new SCL. As noted in Chapter 1, the KCRC was successful in its bid largely because it could count as a *financial* gain (on its own books) the passengers its new line would take away from the existing MTRCL crossings. Yet, in terms of the HKSARG's broader vision of rail-led transport, the award of the crossing to the KCRC works to the opposite effect. The HKSARG's award of the new crossing in the heart of Central-Wanchai to the KCRC results in a *less integrated rail system* overall, and in particular, with respect to cross-harbour traffic.

With the design of the SCL in the hands of the KCRC, there is little incentive for it to optimize the routing and station locations with respect to the overall rail network (most of which is controlled by the MTRCL in urban areas). The result would be that without a merger, Hong Kong's rail system will be less able to compete with buses for cross-harbour travel.⁶² Buses are a major contributor to congestion in Wanchai and Central. Increasing road congestion, in turn puts pressure on the HKSARG to build yet more roads in Central, even at the expense of unpopular and expensive reclamation.⁶³

Furthermore, the KCRC's design of the line for the area between Shatin and the Kowloon shoreline is not one that takes into account how to make maximum use of the existing MTRCL lines in the area. A fresh look at the situation from the standpoint of a merged corporation will surely present additional options for line configuration and station location to serve the same level of transport needs in a more cost-effective manner or to provide wider coverage for the same cost.⁶⁴

The merger would affect the goal of rail-led transport in two ways:

- The potential for attracting more passengers through improved services, e.g. with more seamless interchanges and single through fares between what are now separate rail companies; and by
- Lowering some types of fixed and variable costs, e.g. reducing the number of personnel in middle and upper management; enabling new line configurations and station interchanges to be designed with a view to the whole rail system, and not merely a portion of it.⁶⁵

⁶² While interchanges within either the MTR or the KCR system are carefully designed to be as convenient as possible, it has not been the case with interchanges between the two rail systems. Under existing arrangements, there is little incentive for the two rail operators to promote smooth interchanges. Awkward interchanges increase the likelihood that passengers will leave the rail system at an interchange point and complete their journeys by road, thereby imposing added congestion, air pollution and noise as external costs to society as a whole.

⁶³ There is a real question about how the HKSARG could possibly keep its promise of doing no more reclamation in Central and Wanchai, if it allows (indeed *encourages* through its continued high density planning for the area) road traffic in the area to continue to grow.

⁶⁴ This is simply common sense. Consider the number of options one might come up with for the design of a rail line to meet the needs of a given area, while ignoring the existence of existing rail lines nearby. Now, think of serving the same area by *also* being able to link up with parts of the existing network. More design opportunities will present themselves (hence increasing the potential for lower cost options). Meanwhile, customers benefit from being part of an integrated, not an isolated, system, adding to the underlying attractiveness of rail.

⁶⁵ The merged corporation will be in a better position not only to attract new customers but to also keep existing ones on the rail network for a greater portion of their total journey.

4. Scope for Fare Reductions

The two potentials noted above should offer sufficient opportunities for a *moderate* level of fare reduction. The greatest scope for fare reductions lies outside the merger itself.

It lies in the balance between competition and coordination of rail and road transport. Most basically, the scope for fare reduction in capital-intensive transport systems lies in raising the utilization level (load factor) on the fixed assets.

Before discussing this, it is useful to consider in more detail the factors affecting fare-setting on particular rail and bus routes in Hong Kong, since these will affect the nature of the optimal competition/coordination balance.

For any business, the average price that customers overall are charged depends on the:

- Average cost of producing the good or service;
- Existence of direct or indirect subsidies or taxes; and
- Competitive conditions in the market (between suppliers and customers).

The fare a particular customer pays depends on the above conditions **plus** the:

- Ability (if any) for the provider to *price discriminate* among different types of consumers; and
- Provider's ability/willingness to cross-subsidize from one type of customer to another.

To briefly explain, the average cost of production, inclusive of the cost of finance and a normal profit, determines the 'minimum average price' that the provider of the service must charge, over the long term, in order to stay in business.⁶⁶ Taxes and subsidies from the government will, of course, affect this minimum average cost as seen by the service provider. A subsidy may directly or indirectly lower some costs (e.g., fuel costs), or provide a broad financial cushion to allow the provider to charge less, while still maintaining necessary returns to investors (e.g., property development rights). There is also the matter of whether roads built at public expense are free of charge or not.

The relevant competitive conditions in the market will often be rather broader than they might seem at first glance. Typically, service providers not only compete with strictly similar types of services, but also with near substitutes. So, for example, the major competition for rail services in Hong Kong is not other rail companies, but buses. Likewise, the franchised bus companies face direct competition not only from each other (at least along some routes) but more broadly from public light buses (PLBs).

The situation becomes much more complex when we consider the potential for

⁶⁶ Here we refer to *service providers*. In transport this might be the providers of rail, and large or small bus transport. The same principles apply, of course, to producers of physical products.

service providers to 'price discriminate' among different types of customers. If they can get away with it, profit maximizing service providers will attempt to charge different types of users on the basis of their specific 'willingness to pay'.⁶⁷ In some cases this might mean offering especially profitable higher priced 'premium services' for customers from affluent areas.⁶⁸ It might also be used to raise prices on routes where there is inadequate competition (if regulators permit).

In a regulated service environment, price discrimination may go hand-in-hand with cross-subsidization. For example, fares on routes serving affluent markets may, if the competition there is limited, be higher than strictly necessary. The surplus thereby generated could be used to offset losses on a route where population density is too low to make reasonably frequent service profitable. Government regulators may implicitly (or even explicitly) participate in such cross-subsidization, seeing it as a useful form of indirect social welfare.⁶⁹

While the information needed to identify specific cases of price discrimination and cross subsidization in Hong Kong's road and rail transport routes is proprietary (and unavailable to the public), it can be inferred in some cases. Consider for example, the frequency and prices of bus service to relatively remote locations such as Hoi Ha Wan or Shek O. Are the fares adequate to cover the full cost of the service? If not, KMB or New World First Bus (NWFB) must be allowed to make up for it by charging more than the lowest possible fares on routes in wealthier and higher density areas where transport competition is limited.⁷⁰

For historical reasons,⁷¹ prices charged for crossing Victoria Harbour, whether by rail, bus, PLB, or taxi, are higher per kilometre than fares charges by the same service providers elsewhere. Another clear example is the cross-border transport to mainland China by franchised bus, coach or rail. Fares for the crossing are relatively high, providing opportunities for the KCRC and KMB to make up for losses on some other services. Unfortunately for the KCRC and KMB, private coach services are able to undercut them, while still making potentially extraordinary profits. The advantage the providers of cross-boundary coach services enjoy is that they are not simultaneously providing subsidized services to other areas.

Furthermore, where there is competition for services, but it is localized and uneven, there may evolve an elaborate system of price discrimination and cross-subsidization among routes as service providers over-charge on routes with limited competition and under-charge on routes a high level of competition.

The point here is not to accuse the major transport service providers in Hong Kong of exploiting the public.⁷² Rather, the point here is to stress how complex the system of fare setting is. A change in fares in one place may directly affect the fares charged somewhere else.

⁶⁷ To put this in terms of economics, the goal of the price discriminating good or service provider is to extract as much of the 'consumer surplus' as possible from each type of customer.

⁶⁸ In other words, where the income from the added premium is greater than the cost to the provider of offering it.

⁶⁹ Or, of course, simply as a way of minimizing complaints about transport services.

⁷⁰ This is a simple statement of fact; *there is no free lunch*.

⁷¹ The Harbour has always been a significant barrier to transport in Hong Kong. As such, crossing it whether by ferry or tunnel has long been seen by providers as a way to raise fares beyond the added cost of the ferry or tunnel.

⁷² In fact, the system of cross-subsidization between routes seems so entrenched in Hong Kong's transport system that it is difficult to imagine removing it.

5. Inflation/Deflation and Cost of Transport Services

Although economists tend to discuss costs in 'real terms' (that is, in 'constant dollar values' independent of overall price inflation/deflation), from a financial standpoint inflation/deflation does matter. Yet, it matters in particular ways that may not be obvious. In cases where most prices are moving in one direction (up or down) for some period of time, inflation/deflation matters in two quite different ways:

- It affects the purchasing power (value) of each unit of revenue (Dollar, Yuan, Yen, etc.) received by the service provider; and
- The real (uninflated/deflated) cost of things purchased by the business.

It is for changes in the purchasing power of each dollar where price indices (a weighted average of prices for many different items) are useful.

Consider a business operating in an economy experiencing a 15% increase in overall price inflation (over say a five year period). If the index accurately reflected the business' cost structure, then its income must rise by 15% to remain in the same real financial position. Likewise, if average prices fall by 15% over some time period, then even if the income remains the same, it represents greater purchasing power (wealth).⁷³

Yet, while broad-based price indices are useful, they can be misleading. For example, for a home owner with a fixed mortgage, if the average cost of flats goes down by 20%, his direct housing costs do not fall.⁷⁴ In this case, the weighted average on which the index is composed, such as the Consumer Price Index (CPI), does not reflect his cost structure. Similarly, for a capital-intensive business where fixed interest payments on money borrowed are an important part of its costs, the firm's particular cost structure will in fact be more stable than what changes in a broad based price index would suggest. Hence, trends in a wide mix of prices will not necessarily be reflected in all the important costs faced by providers of goods or services (and hence their ability to raise or lower their prices in line with some general price trend). Rather, the scope for prices changes in line with changes in the cost of other goods and services depends on price changes for those *specific things* that make up the major components of a service provider's cost structure.

Disaggregating the Interest Rate

Given the importance of the cost of interest on debt in capital-intensive transport systems, it is useful to briefly consider the separate elements of the interest rate. Normally, the interest rate is composed of three separately determined elements:

- A 'real' rate of return;
- Expected level of overall price inflation/deflation over the period of the loan; and
- A risk premium (if any).

⁷³ The situation becomes more complicated in a case such as Hong Kong's where the value of the local currency is pegged to an overseas currency.

⁷⁴ Indeed, in this situation, 'inflation' in the cost of housing may be a blessing rather than a problem.

For example, a 12.5% nominal interest rate might be composed of a 4% real rate of return, a 3% expected average rate of inflation, and a 5% risk premium (i.e., $1.04 \times 1.03 \times 1.05 = 1.12478$).

In practice, the base rate (expected 'real' rate of return) tends to be rather constant over time. The risk premium is based on investor's assessment of the potential for them failing to get the expected return in the particular situation at hand.⁷⁵ The impacts of expected inflation/deflation are not so straightforward.

Clearly, the expected direction and level of any broad changes in the purchasing power of the local currency (inflation/deflation) is something quite difficult to predict with much accuracy. Hence, when the interest payments are fixed, and there is an unexpectedly high level of inflation, the borrower benefits by being able to pay back the loan in dollars that are worth less than what they borrowed. Conversely, in times of unanticipated deflation, the borrower suffers by having to pay the interest in dollars that are worth more than expected. The majority of the MTRCL's borrowings are at fixed interest rates, but its borrowings are generally relatively short term (2 years or less, and 2 to 5 years) making it less likely that the expected rate of general price inflation/deflation in the fixed borrowings and the actual rate of inflation/deflation get severely out line.⁷⁶ Nonetheless, it is conceptually inappropriate to tie selling prices for outputs from capital intensive firms to some broad index of overall price change.

6. Choice is not Free

Average Cost of Service Provision

Choice is wonderful. The range of choice in goods and services in market economies has long been cited as a major benefit. One of the most impressive features of the Hong Kong transport system is the range of choices. In areas of extreme density, a Hong Kong resident typically can (within a short walking distance) use the underground or have the alternative of one or more bus routes going to (or very near) his destination, catching a mini-bus, or flagging-down a taxi. As noted above, due to de facto cross-subsidization, even in relatively remote parts of Hong Kong with quite low density, the frequency of bus and mini-bus service is strikingly high.

Yet choice is not free. This is particularly true with respect to capital-intensive transport systems and in cases where congestion is a problem.

With the exception of taxis, public transport services are provided in relatively large units, rather than individually to customers.⁷⁷ Furthermore, the cost of the vehicle/rolling stock and of the road/rail bed is largely fixed (rather than changing significantly with the level of use). Hence, much (and in some cases most) of the cost of the service provided is independent of the load factor.

If one considers that the average cost of service (which sets the minimum long term

⁷⁵ This risk premium may be affected by such things as the institutional setting in which the borrower operates. In a setting where investors see the potential for government regulators insisting that the borrower set unsustainably low prices for his services, or where competitors of the firm that is borrowing the money might be given certain preferences by regulators, there is likely to be a 'risk premium' added to the cost of the loan.

⁷⁶ MTRCL, *Annual Report 2002*.

⁷⁷ In economics this is referred to as 'lumpiness' in supply.

price level)⁷⁸ is the total cost of providing service to all the firm's customers divided by the number of customers, we can see that the average cost of most transport services is highly dependent on the load factor.

For example, let us consider a relatively stable population of customers for public transport in a given area,⁷⁹ then by definition, the greater the number of choices, the lower the average load factor on each of them.

Take a case where 100,000 people have to be moved from point A to point B (and back) each working day. Say they have two modal choices. 40,000 people choose rail and 60,000 people choose bus. If a third option (e.g., PLB) were added, and that third option is to have enough customers to be commercially viable, then the split might become something like 35,000 people take rail, 50,000 bus, and 15,000 PLB. In this illustration, adding the choice of PLBs raises the average cost of services by rail or bus substantially (i.e., by 14% for rail and 20% for buses).

This is not to say PLBs should be eliminated. Rather, the point is to show how the dynamics of load factors and the average cost of service tend to work, so as remind us that choice is not free.

To take an actual example, the cost per rider of the MTRCL's Airport Express goes up when it faces high levels of competition (frequent service, lower fares) from buses and hence lower load factors.⁸⁰ Again, the point is not that competition on transport to the airport should be eliminated, but rather that in cases like this, high levels of competition where the prime carrier has a high fixed cost has the undesirable effect of substantially raising the cost of service provision by that main carrier.

One might ask, "why build rail lines to the airport at all if buses are cheaper and offer greater flexibility?" For various reasons, including faster travel time from relatively distant airports, and freedom from the travel time uncertainties and other problems associated road congestion, major airports around the world tend to have rail connections. Yet, in the interest of greater flexibility of service, supplemental road transport is also provided.

A dilemma arises when the Government feels it must have rail services, but then allows the 'supplemental' road services to compete to the point where the load factor on the airport rail line falls below economic levels. The point in this particular case (as noted more generally above for rail systems overall) is that the road transport services only appear to be less expensive because riders do not pay the external costs such service imposes.

Greater coordination among transport modes (e.g., feeder bus service to rail stations; feeder mini-bus service to rail stations, stops on major bus routes etc) does impose an additional 'cost' on travellers in the time and inconvenience required to switch modes. Yet, the benefits in terms of the potential for lower fares, reduced road congestion and street-level air quality are substantial.

⁷⁸ Again, including 'normal' profit.

⁷⁹ In other words, to the extent that if the option of alternatives to public transport such as private cars or telecommuting are not widespread, and most travel is non-discretionary.

⁸⁰ One can always get a seat on the airport express, and usually a choice of seat.

Congestion

The other way in which choice is not free occurs when there is congestion on an important link in the transport system. Here the impact of added choice is not only to raise the average money cost of services on the part of the initial service providers, but adding a time and pollution penalty as well. Consider two examples: one adding another choice to the road transport modal mix, e.g., taxis. To take a taxi at a time of peak road usage is to add to the number of vehicles on the road and to decrease the passenger carrying capacity on a particular portion of the road network. Again, this is not an argument for keeping taxis off Hong Kong roads, but to simply illustrate the point.

Alternatively we might consider the option of adding an express train along busy trunk lines that only stops every third station. While such service might have a widespread appeal, unless extra tracks can be laid, such service would interfere with normal passenger rail service, potentially slowing it down. Here again, added choice imposes time (and some pollution) penalties on other users.

Choice: the Up-side

So why do we all prefer choice? First, competition provides on-going pressure to service providers to ensure their fares are as low as possible and the quality of service per dollar as high as possible. Second, while higher load factors lower average costs, crowding (or the need to stand) lowers the quality of the journey for passengers. Third, a variety of transport modes allows passengers the freedom to select among the modes on the basis of not only cost, but other factors such as travel time and comfort.

Choice and Role of Regulation

With regard to how different choices are perceived by travellers, the role of regulation is crucial, though often obscure to the public. Transport modes in Hong Kong do not compete on a level playing field. Consumer decisions regarding choice of transport modes are greatly affected by price, convenience, comfort, and speed. These factors are, in turn, heavily influenced (albeit sometimes indirectly) by specific government regulations. For example:

- Buses do not pay for the roads they use, while mini buses and taxis pay substantial road-related costs (registration/licensing fees; fuel taxes). Hence, there exists an implicit and substantial cross-subsidy to buses from all other roads users (as noted above, in the case of KMB if we consider the full diesel fuel tax as the base, this amounts to about 13% of total revenue) and comes in recognition of the external benefits of franchised buses over other forms of road transport. This happens despite the fact that heavy vehicles, such as buses, impose far more wear and tear on roads than do lighter vehicles for each kilometre they travel.
- Residential coaches often run much like scheduled bus services during peak hours, adding to congestion, noise and air pollution. It is unclear whether the HKSARG has considered imposing restrictions on such services (i.e., requiring that they terminate at an outlying rail station or bus hub), or of charging them substantial fees to be allowed to go into congested places like Central during peak hours.⁸¹

⁸¹ We already do this with respect to time of day restrictions for particular types of vehicles on

- When bus routes are awarded as packages of routes, there is the potential for considerable cross-subsidisation between routes. While this helps explain why Hong Kong can maintain relatively good bus access in rural areas, it also means that fares in areas of higher population density may be somewhat higher than they would otherwise need to be if *each* route was self-financing. Such policies should have much higher transparency than they do currently
- The MTRCL gets about 10% of its income from property-related developments but it must pay the full cost of the rail-beds it builds and uses. It then competes with buses which, in effect, get use of the roads free of charge. It has already been noted in this report that the MTRCL is unique in the world in not receiving direct grants for a major part of the cost of new line construction.⁸² If the old property development model is no longer desirable, what form of support should replace it (whether or not the merger goes ahead)?
- No road user pays the full cost of the congestion, air pollution and noise generated. While the generation of electricity used to power trains produces less pollution (and reaches people in less dangerous concentrations) than that from road transport, road services operators (and hence the passengers) are not bearing the full cost of the pollution. The HKSARG should undertake a comprehensive review of the pollution per passenger kilometre from each major transport mode in Hong Kong and use this information to help in formulating policies with respect to future direct and indirect supports to particular modes.

A more transparent transport regulatory framework would help to make clear to the public how its choices are being affected by such regulations (that is, the fares travellers face on particular routes, the frequency of service, the quality of that service, etc). Further, the public would be more aware of how such decisions affect the need for new roads and the viability of new rail lines.

The HKSARG can streamline the transport network and reduce expenditures by acknowledging that expanded rail service (new lines) can – in particular cases – obviate the need for new roads or the substantial up-grading of congested ones to serve the same general transport needs.

To sum up, government regulation plays a crucial, though often obscure, role in determining the types of transport choices consumers face in such things as (i) the number of modes to which each of us has convenient access, (ii) the level of fares we face on particular routes, (iii) the quality of transport service (including waiting time), and (iv) whether demand management options have been considered as a way to reduce capital expenditures on roads.

Striking a Balance

Hence, the question with regard to competition becomes one of *how much competition is optimal*. As noted above, having the MTRCL and KCRC 'compete' for the right to build new rail links is inefficient and counter-productive. The most important form of competition is between rail and franchised buses. The 'optimal' level of competition is a level high enough to keep the MTRCL feeling sufficient pressure to ensure it maintains high standards of service at a feasible fare. Yet, the

certain roads.

⁸² Barron, Ng, Kwok, 2001.

level of competition should not be so high as to limit railways to only areas of the most extreme density.⁸³

The competition model espoused by economists requires that consumers be free to make choices based on an awareness of the full costs and benefits of each option. This might include, for example, the rising marginal cost of building additional roads in densely built-up areas. Yet, in Hong Kong, as in most of the world, travellers do not face user charges for most of the roads and so are unaware of (and unconcerned with) the rising marginal cost of adding new roads.

Consider, for example, the proposed P2 road network in Central just offshore from the pre-existing shoreline at Queen's Pier. The cost of the P2 network is not only that of constructing the roads, but also the un-priced 'cost' of having the reclamation in Central be larger than what would be required for the underground Central-Wanchai By-pass (CWB) alone. Further, since such roads intrude into the already densely packed urban landscape, they impose other un-priced costs in terms of a lower quality of experience for those visiting or using such areas, and taking land away from alternative uses.

Both in terms of financial costs, and un-priced environmental costs (not to mention the political difficulties), P2 is a very costly addition to our road capacity. Yet, the travellers on P2 are unlikely to even be aware of that.

Where travellers have a choice of road and rail, congestion on one naturally leads some users to switch to the better performing option. Yet, in the real world, rail systems, being capital-intensive, are not as widely available as roads. Where the population coverage of rail is relatively restricted (as it is in Hong Kong)⁸⁴, many travellers have no meaningful off-road option. Hence, in that regard, user choice is more limited in terms of rail than it is compared to persons in other 'world cities'.

Furthermore, travellers in Hong Kong do not face congestion charges. This means that they face no penalty for slowing traffic for other road users when they add to traffic at peak hours.

So long as it is possible to simply expand the supply of roads to alleviate congestion, then intra-road competition arguably could be sufficient to provide adequate (and potentially optimal) consumer choice.⁸⁵ Clearly however, in Hong Kong, as in most other urban places around the world, the option of building ever more roads imposes increasingly high opportunity costs on the city by taking valuable land (or shorelines) and pre-empting its use for other purposes.⁸⁶ When such opportunity costs rise, then decisions that made sense in the past (such as putting elevated highways along urban shorelines or through neighbourhoods) can and should be re-evaluated – in some cases perhaps leading to the dismantling of such structures.

⁸³ Buses are flexible. Their fixed-to-variable cost ratios are not as extreme as those for rail. Since they can use the roads free of charge, while the rail users must fully pay for the rail lines, buses can often undercut rail in areas of moderately high density. Because of this, Hong Kong's rail network remains skeletal compared to that of any other 'world city'. We pay the price in poor air quality at the street level, and in heavy (and worsening) road congestion.

⁸⁴ The HKSARG's use of a 1-kilometre catchment for rail stations should only be applied where there exist convenient feeder services to and from the stations for those who live or work more than about 400 metres from a rail station. See footnote 33.

⁸⁵ The important caveat here is, of course, that the riders on various road transport options bear the cost of the external (air pollution/noise) costs they impose on others.

⁸⁶ This is not to even mention the reduction in *quality of life* due to excessive noise levels, air pollution and splitting and isolating communities with roads that act as barriers.

One way out of this dilemma is through an increase in coordination between rail and road services. Coordination helps to attain two ends:

- Lowering the *average cost of service* on the capital intensive rail system (hence, increasing the scope for fare reductions) and expanding the number of potentially profitable station catchments and new lines;⁸⁷ and
- Reducing (but not eliminating) long-haul bus service on origin-destination links served by rail, and replacing part of this long haul bus service with good feeder bus services, thus reducing congestion and pollution. Reduced road congestion will, in turn, force the rail provider to work hard to maintain his competitive edge.⁸⁸

In earlier years, the Government promoted a degree of coordination between bus and rail. Yet, over time the emphasis has moved toward maximizing competition. Originally, *M* bus routes designated a feeder to rail stations. Now, however, their feeder role has been allowed to become almost coincidental.

To put efficiency firmly back on the transport policy agenda, the HKSARG should conduct an open and comprehensive assessment of the appropriate balance between competition and coordination across transport modes under Hong Kong conditions. As noted above, through fares on a merged rail system could encourage people to make as much of their journey as possible on rail. Eventually, this concept can be and should be applied much more broadly and include feeder bus service as part of the through fare mechanism.⁸⁹ A single price ticket provides considerable leeway for splitting the fares in such a way as to make feeder service profitable to both bus and rail.

7. External Costs

All mechanized forms of transport pollute, some much more than others. It is equally true that only a modest portion of the pollution from motor vehicles and power plants is controlled to the point where the cost of this pollution reduction is reflected in the prices as seen by customers of the service.

Furthermore, in the case of road transport in Hong Kong, each additional vehicle on the road during peak periods imposes congestion externalities on other vehicles nearby. In other words, the 'external costs' of having mostly empty buses and residential coaches in Central during the evening peak hours include adding to particulate and other pollution, as well as increasing travel time (and pollution output

⁸⁷ Basically, the aim is to provide a reasonable level of choice so as to keep both the rail and bus operators feeling competitive pressure. However, as noted above, where the level of bus service capacity plus rail capacity considerably exceeds demand, this raises the average cost of transport. The reason why this over-capacity tends to come about is that the bus provider compares his own cost of service with fares. So long as the fares exceed his variable costs, it pays him to put a bus on the route. In the case of the airport express, this results in fewer passengers, and hence high average costs on the rail route whose costs are largely fixed.

⁸⁸ The key is, of course, that feeder service be profitable to the buses, mini-buses and taxis providing such services. This should be possible to arrange in light of the differences in the fixed to variable cost ratios of road and rail transport providers and with an open mind with respect to fare-splitting possibilities between the long haul and feeder service providers.

⁸⁹ The Octopus card system could, in principle, make bus-rail interchanges nearly as seamless as rail-rail interchanges.

per journey) for other vehicles nearby.

The reason why external costs matter is that because they are 'external', customers normally do not take them into account when selecting one mode of transport over another. Hence, when faced with the choice of rail or road transport, the much greater pollution impacts of road over rail are unlikely to figure into the choice of most passengers. Likewise, given the choice of scheduled bus service or frequent and convenient residential coach service, the estate resident is unlikely to dwell on the external costs he or she imposes on others when they opt for the coach rather than a scheduled bus.

While external costs are outside the costs seen by the market, they nevertheless represent quite real impacts on all of us. Hence, we tend to look to government to keep such negative external impacts within acceptable limits.

8. Profit

If the quality of wholly or partly private transport services is to be high and remain so, then there must be adequate long term incentives to the shareholders. In essence, this means that fares and other income to the providers must be high enough to cover the average cost of service as well as providing a market rate of return to investors. Importantly, the 'average cost of service' must include provision of funds for the optimal maintenance of the system. One problem with wholly government-owned transport systems is the temptation to cut into maintenance so as to lower fares for passengers. Evidence of this is all too clear in the London Underground or the New York Subway system and in bus services in lower income economies around the world.

Total income to the service provider must also cover the cost of capital acquisition (i.e., debt servicing and return to equity holders). This is particularly true in an expanding transport system. Private investors require an investment climate where future profitability can be projected with reasonable confidence. This has to do with matters such as the expectations about government influence on the fare-setting mechanism in which the service provider cooperates, and the 'levelness of the playing field' with respect to competitors (i.e., whether the government offers advantages to some service providers that are not enjoyed by all).

CHAPTER 4: CONCLUSIONS

Merging the MTRCL and the KCRC will be good for Hong Kong. It removes certain inherent and wasteful conflicts. It should help put passenger rail in Hong Kong on a sound corporate and financial footing. This will allow rail to better play its crucial role in achieving stated transport and environmental policies.

The merger may offer opportunities for lower fares. However, this should not be the reason to support the merger. The merger is a way to strengthen rail's ability to compete more effectively against road transport. The greatest potential for lower transport fares lies in raising load factors on the heavier transport carriers, which can best be promoted by some degree of balance in coordination versus competition between rail and road transport.

Railways are essential to the proper functioning of high density urban settings. But railways are expensive and require significant public sector support to compete commercially against road transport which imposes high but largely un-priced external costs on society. Public sector support in one form or another is provided by governments around the world in recognition of the fact that for large, dense urban areas, rail provides vital external benefits to society that are not readily captured by the service provider.

The MTRCL should acquire the KCRC's assets so as to provide an attractive platform for future equity investors. Yet, KCRC's relevant line assets must be acquired at a value that enables the successor to acquire a commercial return. This means the KCRC's assets should be acquired at a price that reflects their economic value rather than their construction cost. The HKSARG should ensure that there is a high level of transparency in the merger transaction. It should not try to disguise true values just because they may be large and perhaps difficult to explain to the public.

New railway lines must be justified on transport, economic and environmental grounds; once one is justified it should be afforded appropriate public sector financial support. The proven MTR property model should be considered as one method of support, along with others (e.g., grants to cover part of the construction cost of new lines).

With a sound financially secure single railway company, Hong Kong can have a transport future to be envied once again by other major cities.

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