
INFORMATION NOTE

Toll increase of the Eastern Harbour Crossing

1. Background

1.1 In the mid-1980s, increasing traffic growth and congestion at the Cross Harbour Tunnel had inevitably pointed to the need for the construction of a second vehicular harbour crossing. In August 1986, the Government awarded the franchise for the construction and operation of the Eastern Harbour Crossing (EHC)¹ to the New Hong Kong Tunnel Company Limited (NHKTC). Costing HK\$2.2 billion² in its construction, EHC opened to road traffic on 21 September 1989.

1.2 NHKTC has raised the toll charges twice since the opening of EHC. NHKTC's justification for the most recent toll increase in 2005 was the need to achieve *a reasonable but not excessive remuneration* as provided for in the Eastern Harbour Crossing Ordinance (Cap. 215). The purpose of this information note is to provide Members of the Panel on Transport with background information on the second toll increase at EHC and the debate over the justifications advanced by NHKTC for the toll adjustment.

2. Eastern Harbour Crossing Ordinance

2.1 EHC is a Build-Operate-Transfer franchise project commenced in 1986 and lasts for 30 years. NHKTC is responsible for building and operating EHC. The company is required to transfer the tunnel back to the Government when the franchise expires in 2016. In return, NHKTC is entitled under the Eastern Harbour Crossing Ordinance to receive a reasonable but not excessive remuneration from building and operating the tunnel during the franchise period.

2.2 Section 55(3)(a) of the Eastern Harbour Crossing Ordinance provides that the tolls specified in the Schedule to the Ordinance may be varied by agreement between the Chief Executive-in-Council and the tunnel company. If an agreement cannot be reached, either party can submit the dispute over the variation of tolls to arbitration.

¹ EHC is a two-kilometre tunnel linking up Quarry Bay on Hong Kong Island and Cha Kwo Ling in Kowloon.

² The construction of EHC was financed by both shareholders' capital (HK\$750 million) and bank borrowings (HK\$1,464 million).

2.3 The Eastern Harbour Crossing Ordinance does not set out the criteria for determining toll adjustments. It only stipulates that if the matter is submitted for arbitration, the arbitrators shall be guided by the need to ensure that the tunnel company is reasonably but not excessively remunerated for its obligations under the Eastern Harbour Crossing Ordinance, having regard to, among other things, any material changes in Hong Kong's economic conditions since the enactment of the Ordinance or since the tolls were last determined.

3. Arbitrations on the toll increase of the Eastern Harbour Crossing

3.1 Since the commencement of the operation of EHC, NHKTC has sought arbitration on its toll increase applications in 1997 and 2005.

The 1997 arbitration

3.2 In May 1995, NHKTC submitted an application for a HK\$10 increase in tolls (from HK\$10 to HK\$20) for private cars, and similar percentage of increases for other types of vehicles. According to NHKTC³, the company was obliged to do so as its internal rate of return had been below a reasonable but not excessive level since the opening of EHC.

3.3 The then Governor-in-Council rejected NHKTC's application for toll increase in October 1995. In January 1996, NHKTC formally notified the Government that it would commence arbitration against the Government's decision, and the arbitration was conducted in February 1997. In the 1997 arbitration, both the Government and NHKTC agreed that the appropriate yardstick for measuring the reasonableness of the remuneration to the company was its internal rate of return on equity after tax (IRR) over the life of the tunnel franchise.⁴

3.4 In April 1997, the arbitrator made the following ruling on NHKTC's application for toll increase at EHC:

- (a) there was a band or range of remuneration considered to be reasonably but not excessively remunerative to NHKTC;
- (b) the band of reasonable remuneration to NHKTC was an IRR of between 15% and 17% over the life of the tunnel franchise;

³ See New Hong Kong Tunnel Company Limited (2005a).

⁴ IRR is defined as the rate of return that would make the present value of future cash flows plus the final market value of an investment or business opportunity equal the current market price of the investment or opportunity.

- (c) the tolls for private cars and taxis would be increased by HK\$5 with corresponding increases for other vehicles from 1 January 1998 onwards, so as to prevent NHKTC's return from falling below an IRR of 15%; and
- (d) further toll increases of HK\$5 at approximately five-year intervals would be necessary to keep NHKTC's IRR within the band of reasonable but not excessive remuneration.

The 2005 arbitration

3.5 In September 2002, NHKTC applied for a second toll increase of HK\$5 for private cars and corresponding increases for other vehicles to take effect from 1 January 2003. NHKTC's justification for the second toll increase was premised on the need of a higher toll to maintain the level of the reasonable but not excessive remuneration (an IRR of between 15% and 17%) set out in the 1997 arbitration.

3.6 In July 2003, the Chief Executive-in-Council rejected NHKTC's application because the proposed toll increase could not be justified on either traffic management or financial grounds.⁵ In August 2003, NHKTC gave notice to the Government of seeking an arbitration to determine the toll increase application. The Government and NHKTC each appointed an arbitrator to adjudicate the application.

New Hong Kong Tunnel Company's justifications for the toll increase

3.7 In the 2005 arbitration, NHKTC sought a toll increase of HK\$10 for private cars and taxis, and corresponding increases for other types of vehicles.⁶ According to NHKTC, the toll adjustment was to ensure that the company's remuneration would be within the 15%-17% band of reasonable remuneration determined in the 1997 arbitration.⁷ It was projected that the HK\$10 toll increase, followed by a further toll increase of HK\$10 for private cars and taxis (with proportionate increases for other types of vehicles) expected to take effect on 1 January 2010, would give NHKTC an IRR of 15.03% over the life of the tunnel franchise.

⁵ See Hong Kong Special Administrative Region Government (2003).

⁶ As explained by NHKTC, "*the reason [why] an increase of HK\$10 is required now, whereas the NHKTC had applied for a HK\$5 increase in its application in 2002, is because the franchise to operate the tunnel expires on a fixed date in 2016 and there is less time for the NHKTC to earn the reasonable but not excessive remuneration to which it is entitled.*" See New Hong Kong Tunnel Company Limited (2005g).

⁷ As calculated by NHKTC, the company's IRR up to 2003 was 8.4%. In addition, NHKTC's projected IRR over the life of the tunnel franchise would be 13.64%, should there be no further toll increases at EHC.

The Government's argument against the toll increase

3.8 In settling the dispute over the toll adjustments at EHC, the arbitrators are required under the Eastern Harbour Crossing Ordinance to have regard, among other things, to the material changes in Hong Kong's economic conditions since tolls were last determined in 1997. According to the Government, the band of reasonable but not excessive remuneration to NHKTC should be adjusted downwards to 12%-14%, having regard to the adverse changes in Hong Kong's economic conditions since 1997.

3.9 As explained by the Government⁸, "[b]etween 1986 (when the franchise was granted) and 1997 (when tolls were last determined), the annual GDP growth (year-on-year basis) was between 10.5% to 23%, except for 1995 when it grew by 6.5% only. However, over the six year period from 1998 to 2003, there was a GDP contraction in five years (ranging from 0.8% to 4.8%) with only 1 year of growth in 2003 (3.4%). [Furthermore], between 1986 and 1997, annual inflation was between 3.8% and 11.6%. In 1998, inflation dropped to 2.8% and over the next 5 years from 1999 to 2003 there was a continuous deflation of between 1.6% and 4% per annum."

3.10 Based on the traffic projection of EHC, the financial experts of both the Government and NHKTC agreed that NHKTC's projected IRR over the life of the tunnel franchise would be 13.64% if there were no further toll increases at EHC. As such, the Government stated that NHKTC could still earn a reasonable remuneration even without the second toll increase, as its IRR under the "no-toll-increase" scenario already fell within the range of between 12% and 14% which was considered reasonable by the Government.

3.11 The Government also opined that the arbitration ruling in 1997 was not binding on subsequent cases and each case had to be considered on its own merit. Hence, the band of reasonable but not excessive remuneration determined in the 1997 arbitration was neither fixed nor immutable.

The arbitrators' ruling

3.12 The arbitration hearings on NHKTC's toll increase application were conducted between 20 September and 24 September 2004. In January 2005, the arbitrators ruled that NHKTC should be awarded the second toll increase. According to the arbitrators, the changes in Hong Kong's economic conditions since 1997 were not material enough to affect the overall level of reasonable but not excessive remuneration over the life of the tunnel franchise. In particular, the Consumer Price Index for 2003 was almost the same as that for 1995, while the Hang Seng Index at end-2003 was 22% higher than that at end-1995. Furthermore, the level of Gross Domestic Product (GDP) for 2003 was slightly higher than that for 1996. As such, the level of reasonable but not excessive remuneration to NHKTC should continue to be an IRR of between 15% and 17% over the life of the tunnel franchise, as was determined in the 1997 arbitration.

⁸ See Environment, Transport and Works Bureau (2005b).

3.13 Having examined the various toll increase options, the arbitrators considered it appropriate and necessary to award a HK\$10 toll increase for private cars with corresponding increases for other vehicles, in order to help restore NHKTC's IRR to the lower end of reasonable level (i.e. an IRR of 15%). In making the ruling, the arbitrators also anticipated that it might be necessary for a further similar increase in about five years.

4. Post-arbitration debate over the toll increase of the Eastern Harbour Crossing

4.1 The debate over NHKTC's application for the second toll increase has continued after the announcement of the 2005 arbitration results. Some academics have views on the justifications advanced by the arbitrators and NHKTC for the toll adjustment. They focus particularly on the following two aspects:

- (a) reasonableness of the remuneration to NHKTC; and
- (b) significance of economic changes since 1997.

Reasonableness of the remuneration to the New Hong Kong Tunnel Company

4.2 Two academics – Professor Francis Lui Ting-ming and Dr Raymond So Wai-man – consider the level of remuneration requested by NHKTC excessive and not reasonable. However, another academic – Dr Francis Cheung Kwok-hung – thinks otherwise.⁹ The arguments put forward by these three academics are summarized below.

Professor Lui's argument

4.3 To determine whether the expected profit made by NHKTC is reasonable and not excessive, Professor Lui considers it necessary to define a benchmark for the reasonable rate of return. Based on modern financial economics, there is a positive correlation between the risks involved in an investment and its expected rate of return. In general, market forces dictate an expected high rate of return to compensate for high risks.

⁹ Professor Lui is the Director of the Center for Economic Development of the Hong Kong University of Science and Technology, while Dr So and Dr Cheung are associate professors at the Department of Finance and the Department of Decision Sciences and Managerial Economics of the Chinese University of Hong Kong respectively.

4.4 According to Professor Lui, an investment project like the cross harbour tunnel is not risk-free, since economy-wide fluctuations would affect its business. Nevertheless, he reckons that NHKTC faces only lower-than-average risks. Therefore, a reasonable expected rate of return for NHKTC should be lower than the average rate of return to the economy.

4.5 Professor Lui has adopted the following two methods to estimate the average rate of return in the economy, thereby helping ascertain whether NHKTC's expected rate of return is reasonable or excessively high.

Solow Growth Model

4.6 By making use of the Solow Growth Model (an economic model) and the data from the 2001 population census, Professor Lui has shown that the average economy-wide nominal rate of return for local capital investment from 1986 to 2004 ranged from 11.8% to 12.9%. The range is lower than NHKTC's projected IRR of 13.6% for the 30-year franchise period from 1986 to 2016 under the "no-toll-increase" scenario. Based on the above comparison, Professor Lui opines that NHKTC has already enjoyed an expected rate of return that should be regarded as excessively high.

Hang Seng Index

4.7 Professor Lui has also compared the total rate of return on investment in the Hang Seng Index stocks with NHKTC's IRR. From end-1986 to April 2005, the average annual rate of increase in the Hang Seng Index was 9.65%. After including the dividends paid to the investors periodically, the average annual total rate of return on the Hang Seng Index stocks during the said period was calculated to be 13%, which was almost the same as the estimated economy-wide average rate of return discussed in paragraph 4.6. As concluded by Professor Lui, *"since it is hard to believe that investment in the tunnel is more risky than investment in the Hang Seng Index stocks, it would be even harder for economists to accept that the 15% to 17% rate of return for [NHKTC] is not excessively remunerative."*¹⁰

Dr So's argument

4.8 Dr So has adopted a different approach from that of NHKTC in calculating the company's rate of return. NHKTC's calculation was based on an IRR approach, taking into account the company's cashflows (including dividend payments) to investors over the franchise period and the timing of these cashflows. In contrast, Dr So employed NHKTC's cumulative profit over the shareholders' capital as the return measure. With a shareholders' capital of HK\$750 million in 1986 and a cumulative profit of HK\$2.5 billion (up to end-2003), NHKTC's overall return on equity for the past 17 years was determined to be 333% or 19.6% per annum. This was higher than the 8.4% internal rate of return reported by NHKTC for the period up to 2003.

¹⁰ See Lui (2005).

4.9 Alternatively, Dr So made use of NHKTC's net profit on a single-year basis, which amounted to HK\$250 million in 2003, to arrive at a 33% rate of return on equity for NHKTC in 2003. Applying this single-period return measure to the remaining franchise period of EHC, Dr So found that NHKTC's cumulative rate of return on equity for 2005-2016 would be 363%, assuming that the income and expenditure sides of NHKTC remain more or less the same as in previous years. Given this high rate of return on equity, Dr So sees no strong justification for the company to increase the tunnel tolls.

4.10 Dr So has also claimed that there is a problem for NHKTC to adopt the IRR approach in calculating its return on investment. Under the IRR approach, a company's rate of return depends on the timing and the amount of dividend payable to shareholders, which is a matter of commercial decision by the company concerned. The later the distribution of profit to shareholders (in the form of dividend payable) is, the lower the IRR on equity for the relevant period would be. Alternatively, the smaller the amount of dividend payable is, the lower the IRR on equity for the relevant period would be. As shown in NHKTC's balance sheet, the company's retained profits amounted to HK\$460 million in 2003. As such, Dr So casts doubt that NHKTC has retained an unreasonably high level of profit without distributing it to shareholders in order to suppress the return on equity and justify for a higher rate of toll increase.

4.11 Furthermore, Dr So has commented that NHKTC could have substantially raised its IRR over the past years by paying more dividends to its shareholders, which could be made possible by obtaining short-term loans from the Government.

Dr Cheung's argument

4.12 Dr Cheung has compared the level of tolls charged by EHC and the Cross Harbour Tunnel for private cars. According to his calculation, the tolls at the privately-operated EHC have ranged from HK\$10 to HK\$25 in real terms since the commencement of the operation of the tunnel in 1989. For the Cross Harbour Tunnel, the tolls ranged from HK\$9 to HK\$31 in real terms during 1972-1999, when it was managed by a private franchisee.¹¹ If the public could accept the level of tolls of the Cross Harbour Tunnel during 1972-1999, it should not consider the existing EHC tolls as excessively high in view of the increase in real purchasing power since the period when the Cross Harbour Tunnel was privately managed.

4.13 While NHKTC's permissible minimum return (an IRR of 15%) may seem excessively high to the public under the current economic environment, Dr Cheung considers that EHC is justified to require a higher risk premium in view of its massive capital investment, long payback period and economic risks involved. Furthermore, the 15% benchmark return does not amount to a guaranteed return to NHKTC since the tunnel company has to attract sufficient traffic flows to achieve the 15% rate of return.

¹¹ The Cross Harbour Tunnel, a Build-Operate-Transfer franchise project, was opened in 1972. The franchise expired in August 1999 and the ownership of the tunnel has since been returned to the Government.

4.14 According to Dr Cheung, the concentration of traffic flows at the Cross Harbour Tunnel has contributed to NHKTC's revenue shortfall. At present, the Cross Harbour Tunnel has attracted more traffic flows due to its locational advantage and relatively lower toll rates. This has resulted in congestion at the Cross Harbour Tunnel and imbalanced traffic flows among the cross-harbour tunnels. Dr Cheung considers raising the toll levels at the Cross Harbour Tunnel as a way to solve the problem. In particular, a higher toll charge at the Cross Harbour Tunnel would help divert some traffic to EHC, which may help reduce the need for NHKTC to apply for another toll increase in about five years' time.

Significance of economic changes since 1997

4.15 In the 2005 arbitration, the arbitrators considered that the changes in Hong Kong's economic conditions since 1997 were not material in affecting the overall level of reasonable but not excessive remuneration established in the 1997 arbitration.

4.16 According to Professor Lui, the criteria used by the arbitrators to evaluate the significance of Hong Kong's economic changes since 1997 are totally misguided. He claims that the rate of return for an investment does not depend on the *levels* of GDP, Consumer Price Index or Hang Seng Index, but *the rates of changes* in these variables instead. From 1986 to 1997, real GDP grew by an average of 5.9% per annum, while the inflation rate averaged at 8.5% per annum in Hong Kong. The Hang Seng Index also increased by an average of around 18% per annum over the same period. The corresponding figures for the period of 1997 to July 2005 were 3%, -1.9% and -1% respectively. As argued by Professor Lui, "[h]ad the [a]rbitrators been able to use the appropriate criteria for evaluating the significance of the changes in economic conditions, they would have come up with just the opposite conclusion with the evidence cited."¹²

4.17 Another academic – Dr Lam Pun-lee¹³ – shares a similar view as Professor Lui. Dr Lam considers the 1997 arbitration ruling reasonable as the favourable economic environment at that time justified NHKTC to receive an annual return of 15% to 17%. However, he questions the application of the same rate of return as the reasonable remuneration to NHKTC in the 2005 arbitration. As argued by Dr Lam, Hong Kong's economic environment has deteriorated sharply since 1997. During 1998-2003, Hong Kong experienced six consecutive years of deflation, a plunge in property prices and an increased number of homeowners with negative equity. As such, NHKTC's remuneration under the "no-toll-increase" scenario, at 13%-14%, should be viewed as an attractive return amid the adverse economic changes since 1997.

¹² See Hong Kong High Court (2005).

¹³ Dr Lam is an associate professor at the School of Accounting and Finance of the Hong Kong Polytechnic University.

5. The Government and the New Hong Kong Tunnel Company's response to the post-arbitration debate

5.1 In response to the post-arbitration debate over NHKTC's second toll increase, the Government stated that it could not comment on Professor Lui's argument for the lack of details of his calculations. On the other hand, NHKTC has responded to Dr So's comment on its return on equity, level of retained earning and dividend policy.

Return on equity

5.2 According to NHKTC, Dr So's analysis has not factored the time value of money into his calculation of the company's return on equity. He has measured NHKTC's cumulative return at today's price against its shareholders' capital of HK\$750 million in 1986 without adjusting for the time value of money. As stressed by NHKTC, a capital sum of HK\$750 million in 1986 would be equivalent to a considerably higher sum today. As such, NHKTC considers Dr So's calculation misleading and significantly distorting the true rate of return it has achieved.

5.3 As discussed in paragraph 4.9, Dr So used the amount of net profit earned by NHKTC in 2003 to derive an annual return of 33% for the company. NHKTC commented that Dr So's calculation methodology was inappropriate because he did not use the cashflows to calculate the company's IRR, and ignored the fact that the cashflow to shareholders in the first nine years of the project was zero. According to NHKTC, the IRR approach is commonly adopted to measure the rate of return for Build-Operate-Transfer projects, including EHC. In addition, the calculation of IRR takes into account the time value of money throughout the life of the project.

Level of retained earning

5.4 Dr So expresses doubt that NHKTC may have made use of the financial management technique of retaining its profit without distributing to shareholders so as to lower the company's return on equity. In response, NHKTC explains that the amount of dividends payable from the retained earnings had been restricted by the loan covenants before the company paid off its bank borrowings in 2001. NHKTC has actually distributed all its surplus cash to shareholders afterwards. According to the company, the dividend policy all along is to distribute all available cash as dividends to its shareholders. As shown in the company's balance sheet, its cash on hand at end-2003 only amounted to HK\$42 million although the retained earnings totalled HK\$460 million.

Dividend policy

5.5 As mentioned above, Dr So has suggested NHKTC obtaining loans to increase its dividend payments. According to NHKTC, any borrowing will certainly require the assignment of the tunnel and the franchise right to the lenders. Sections 9 and 10 of the Eastern Harbour Crossing Ordinance prohibit such assignment under any agreement for purposes other than for (i) securing the payment for the designing and carrying out of the construction works, (ii) undertaking of any obligation imposed on the company by the Ordinance, the project agreement or the operating agreement or (iii) such other purposes as the Financial Secretary may, by prior notice in writing to the company, permits.

5.6 NHKTC also explains that *"since the franchise will expire in 11 years, it is most unlikely that the company would be able to secure a loan without any collateral for the payment of dividends to shareholders, and even if it could, it would be imprudent to do so."*¹⁴

6. Recent developments in the 2005 arbitration

6.1 On 21 July 2005, two taxi drivers filed an application with the High Court for a judicial review of the arbitration ruling on the second toll increase of EHC. They claimed that the toll increase had affected their business, and that the arbitrators had used the wrong criteria in assessing the changes in Hong Kong's economic conditions since the tolls were last determined in 1997.

6.2 The two tax drivers invited Professor Lui and Dr Law Cheung Kwok as their expert witnesses. The arguments set out in Professor Lui's affirmation submitted to the High Court were similar to those discussed in paragraphs 4.3-4.7 and paragraph 4.16. Dr Law also filed a supporting affirmation with the High Court. In addition to agreeing with Professor Lui, Dr Law also pointed to the deterioration in both the labour market and the Government's fiscal position during 1997-2004 when compared with 1986-1997.¹⁵

6.3 On 24 August 2005, the High Court ruled against granting the leave for the judicial review on the following grounds:

- (a) the contract between the Government and NHKTC was private and the High Court did not have the jurisdiction to hear the judicial review;

¹⁴ See New Hong Kong Tunnel Company Limited (2005e).

¹⁵ As explained by Dr Law, *"the Hong Kong economy indeed changed or deteriorated very significantly during 1997 to 2004 as compared with 1986 to 1997. In terms of employment, the unemployment rate increased very sharply from an average of 2% during 1986 to 1997 to 5.6% during 1997 to 2004. In terms of the financial position of the Hong Kong Government, a surplus fiscal position (annual average) was equivalent to 2.6% of GDP during the 1986-1997 period, and it turned into a deficit fiscal position (annual average) of -0.9%, during the 1997-2004 period"*. See Hong Kong High Court (2005).

- (b) the two taxi drivers did not have sufficient interest to bring the application for judicial review. They failed to provide strong evidence to substantiate their claims that the higher toll charges at EHC had hurt their business directly;
- (c) the two expert witnesses could not pronounce on the reasonableness or unreasonableness of the arbitrators' conclusion on the basis of their economic expertise alone. The determination of a reasonable IRR was not purely an economic exercise, but also required an investigation of law and fact; and
- (d) the affirmations submitted by the two expert witnesses were, in many areas, partisan and outside their economic expertise.

7. Summary of the debate over the second toll increase at the Eastern Harbour Crossing

	New Hong Kong Tunnel Company (NHKTC)	The Government	Arbitrators	Professor Francis Lui	Dr Raymond So	Dr Lam Pun-lee	Dr Francis Cheung
Position on the toll increase	● For.	● Against.	● For.	● Against.	● Against.	● Against.	● For.
Justifications for/against the toll increase	<ul style="list-style-type: none"> ● NHKTC's projected IRR would be 13.64% if without further toll increases at EHC. ● A higher toll at EHC is required to maintain NHKTC's IRR at 15%-17% as determined in the 1997 arbitration. 	<ul style="list-style-type: none"> ● The band of reasonable remuneration to NHKTC should be adjusted downwards from 15%-17% to 12%-14% amid the adverse economic changes since 1997. ● NHKTC's IRR under the "no-toll-increase" scenario (13.64%) already fell within the reasonable range of 12%-14%. 	<ul style="list-style-type: none"> ● The changes in Hong Kong's economic conditions since 1997 are not material enough to affect NHKTC's overall level of reasonable remuneration over the life of the tunnel franchise. ● A second toll increase at EHC is required to restore NHKTC's IRR to the lower end of a reasonable level (i.e an IRR of 15%). 	<ul style="list-style-type: none"> ● The criteria used by the arbitrators to evaluate the significance of Hong Kong's economic changes since 1997 are totally misguided. ● NHKTC faces lower-than-average risks. However, its IRR under the "no-toll-increase" scenario is already higher than the average economy-wide nominal rate of return, estimated at 13%. 	<ul style="list-style-type: none"> ● NHKTC has already enjoyed a high internal rate of return even without the toll increase. ● NHKTC's overall return on equity for 1986-2003 was 333% or 19.6% per annum.¹⁶ ● On a single-year basis, NHKTC's estimated rate of return on equity was 33% in 2003. 	<ul style="list-style-type: none"> ● NHKTC's remuneration under the "no-toll-increase" scenario is already an attractive return in view of the adverse economic changes since 1997. 	<ul style="list-style-type: none"> ● The level of existing tolls at EHC (in real terms) is in line with the tolls (also in real terms) charged by the Cross Harbour Tunnel when it was managed by a private franchisee. ● EHC is justified to ask for a higher risk premium in view of its massive capital investment, long payback period and economic risks involved.

¹⁶ The overall return on equity is equal to NHKTC's cumulative profit up to end-2003 (HK\$2.5 billion) divided by its share capital in 1986 (HK\$750 million).

7. Summary of the debate over the second toll increase at the Eastern Harbour Crossing (cont'd)

	New Hong Kong Tunnel Company (NHKTC)	The Government	Arbitrators	Professor Francis Lui	Dr Raymond So	Dr Lam Pun-lee	Dr Francis Cheung
Measure of return to NHKTC	<ul style="list-style-type: none"> • IRR. 	<ul style="list-style-type: none"> • IRR. 	<ul style="list-style-type: none"> • IRR. 	<ul style="list-style-type: none"> • Risk-adjusted rate of return 	<ul style="list-style-type: none"> • Return on equity. 	<ul style="list-style-type: none"> • Information not available. 	<ul style="list-style-type: none"> • Information not available.
Level of remuneration considered reasonable to NHKTC	<ul style="list-style-type: none"> • An IRR of 15%-17% as determined in the 1997 arbitration. 	<ul style="list-style-type: none"> • An IRR of 12%-14%. 	<ul style="list-style-type: none"> • An IRR of 15%-17% as determined in the 1997 arbitration. 	<ul style="list-style-type: none"> • Below the economy-wide nominal rate of return, i.e.13%. 	<ul style="list-style-type: none"> • Information not available. 	<ul style="list-style-type: none"> • Information not available. 	<ul style="list-style-type: none"> • Information not available.
Approach for determining the level of reasonable remuneration to NHKTC	<ul style="list-style-type: none"> • Based on the arbitration ruling in 1997. 	<ul style="list-style-type: none"> • Calculation taking into account the adverse changes in Hong Kong's GDP, Consumer Price Index and Hang Seng Index since 1997. 	<ul style="list-style-type: none"> • Based on the arbitration ruling in 1997. 	<ul style="list-style-type: none"> • Solow Growth Model (an economic model); and • Return on investment in the Hang Seng Index stocks. 	<ul style="list-style-type: none"> • Information not available. 	<ul style="list-style-type: none"> • Information not available. 	<ul style="list-style-type: none"> • Information not available.

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