

1. Executive Summary

1.1 Background

On behalf of the Competition Policy Advisory Group (COMPAG), the Economic Development and Labour Bureau has commissioned this study to assess the competition situation in the auto-fuel¹ retail market in Hong Kong, in particular:

- to examine whether there is evidence that the oil companies might have engaged in any anti-competitive practices, such as collusion;²
- to consider how competition in the supply of auto-fuel could be improved and lower retail auto-fuel prices (excluding tax) could be achieved; and
- to make recommendations on whether measures, including legislation, might be required to enhance competition in the Hong Kong auto-fuel market.

1.2 Key Findings and Recommendations

1.2.1 On collusion:

The Consultancy Team found no clear evidence that the Hong Kong auto-fuel suppliers are currently colluding.

However, the inherent characteristics of the Hong Kong auto-fuel market, particularly its concentration, degree of vertical integration and relatively small scale, mean there is a risk that collusion could occur.

Accordingly, we recommend that the Government consider preventive measures prohibiting cartel behaviour and anti-competitive mergers, either in the form of general competition laws or sector-specific laws.

1.2.2 On improving competition and lowering retail prices:

Hong Kong's comparatively high auto-fuel prices and margins are partly explained by higher costs in Hong Kong, but there are also structural features of the Hong Kong market that impair competition. In particular, there is limited and declining scale within the overall market, about which little can be done, and new entrants individually lack scale within the market, which may improve over time as they develop current, and acquire new, Petrol Filling Station ('PFS') sites.

At the same time, there are clear signs that the Hong Kong auto-fuel market is becoming more competitive:

¹ The study covers petrol and diesel supplied for private and commercial vehicles and excludes auto-LPG. LPG is unlikely to be, in economic terms, a close substitute for petrol or diesel. Auto-LPG is not used for private vehicles in Hong Kong. Conversion of commercial vehicles to LPG is costly. The Government has provided subsidies and incentives for converting taxis and minibuses to LPG as part of its environmental program.

² Described as 'price fixing' in the Terms of Reference.

- the form of competition has shifted from promotional giveaways, such as bottled water, to price-based competition through petrol cards and loyalty schemes which are available to most customers;
- since 1999, the oil companies' gross margins are estimated to have fallen by HK\$0.33 per litre for petrol and HK\$0.59 per litre for diesel (14% and 25% respectively), partly as a result of more widely available discounts; and
- there is potential for the recent entrants to increase their scale through acquiring PFS sites in forthcoming PFS tenders: approximately ten sites are to be re-tendered in 2007-8.

We have made recommendations to further promote competition by streamlining planning and other approvals processes to facilitate more rapid market entry, reducing restrictions on non-fuel activities to encourage innovation, and using a transparent auction process to facilitate lower premiums for PFS sites.

1.3 Framework for Analysis of Possible Collusion

Collusion (also known as 'explicit coordination') involves an actual agreement between competitors to fix prices. Competition laws, however, generally do not prohibit firms monitoring each other's prices and making parallel adjustments to their own prices, a practice known as 'implicit coordination'.³

The best proof of collusion is direct evidence of the existence of the agreement amongst competitors, such as a copy of the agreement itself or minutes of their meetings fixing prices. Given that there is no legal power to compel the oil companies to produce any information which might provide direct evidence of collusion, our assessment instead has focused on whether pricing conduct and other factors within the Hong Kong auto-fuel market justify a reasonable inference that collusion, rather than implicit coordination, is occurring.

Step 1: We examined the structure and attributes of the Hong Kong retail auto-fuel market with a view to establishing the risk of coordinated pricing behaviour, whether as a result of collusion or implicit coordination. It is not necessary at this first step to distinguish between these two forms of conduct because if risks are low then it is likely neither implicit coordination nor collusion is occurring.

Step 2: As vigorous competition can still occur in markets which are at risk of implicit coordination or collusion, we then analysed the actual degree of competition in the Hong Kong auto-fuel market by:

- building a model to estimate the retail margins being earned by Hong Kong retailers and benchmarking those margins against those being earned by retailers in comparable markets around the world;⁴ and

³ Also described as 'tacit collusion', although this term is somewhat confusing because it incorrectly suggests there is an agreement between competitors.

⁴ Our model is based on a combination of oil company data and non-confidential data. The non-confidential data has been verified against oil company data, where confidentiality requirements permit, and otherwise against publicly available information.

- assessing the price setting and adjustment practices of Hong Kong retailers to see whether they conform with conduct which would be expected in a competitive market.

Step 3: We considered whether, based on any market evidence of coordinated pricing obtained in steps 1 and 2, there would be sufficient evidence to support a finding of collusion under anti-cartel laws applying in other markets. We also assessed whether the oil companies' conduct breached the COMPAG Guidelines.⁵

Based on our findings, we then considered options to enhance competition and reduce auto-fuel prices.

1.3.1 Step 1: Is there a Material Risk of Collusion or Implicit Coordination?

The following key structural factors commonly thought to facilitate collusion or 'implicit coordination' are present in the Hong Kong auto-fuel retail market:

- **High seller concentration:** It is easier to collude when there are fewer firms whose activities need to be coordinated and monitored. The three major suppliers, Shell, ExxonMobil and Chevron, account for over 95% of auto-fuel sales;
- **High entry barriers:** Where barriers to entry are high, prices can be increased without a commensurate threat of entry. Companies without a network of PFS sites across Hong Kong will struggle to attract custom from lucrative commercial fleet customers and may not have sufficient scale to import their own fuel supplies.⁶ While each of the three majors has 47 or more PFS sites, CRC has only 11 sites, and Sinopec and Chinaoil have only three and two sites respectively which are currently operational;
- **Limited product differentiation:** Firms can more easily agree on a common price where the products they sell have few quality and other differences (i.e. the products are homogeneous). Auto-fuel is already a fairly homogeneous product, but in Hong Kong only one octane rating, 98 RON, is available compared to many other markets, which sell a range of other fuels, including 95 RON;
- **Low buyer concentration with frequent sales:** Customers making small, regular purchases do not have sufficient bargaining power to resist price increases which result from collusion or implicit coordination. The majority of sales in Hong Kong are relatively small. A particular feature of the Hong Kong market is the high proportion of commercial trucks and minibuses that refuel through retail PFS and LPG stations rather than rely on bulk deliveries to their own premises; and

⁵ Competition Policy Advisory Group, Guidelines to maintain a competitive environment and define and tackle anti-competitive practices, September 2003.

⁶ The Consumer Council cited BP's inability to secure a chain of sites in urban locations as a key factor in its exit in 1992. Consumer Council (1999) "Energizing the Energy Market: A Study of Motor Gasoline, Diesel and LPG Markets in Hong Kong", p61 (hereinafter 'Consumer Council Report (1999)').

- **High degree of vertical integration:** Vertical integration can facilitate collusion through the supply chain. Of the six main retailers, only Chinaoil and Sinopec are not vertically integrated from terminal facilities to the pump.

There is one significant factor which mitigates against a risk of collusion. Collusion depends on price information being readily available so that firms can monitor each other's compliance with their agreement. Whilst pump prices are very transparent in the Hong Kong auto-fuel market (oil companies announce price changes through press releases), final retail prices are not transparent due to the prevalence of discounts through loyalty schemes.

With the above considerations in mind, we consider there are enough factors present in the Hong Kong auto-fuel market to suggest that there is a risk of collusion.

1.3.2 Step 2: How is the Hong Kong Auto-fuel Market Actually Behaving?

(A) Margin Analysis

(I) Retail Margins in Hong Kong

Our gross margin calculation reflects the auto-fuel pump prices minus discounts (to give the effective price paid per litre), minus taxes and minus product cost. The net margin is calculated from this gross margin by subtracting a number of identified costs before the allocation of company overheads and profits tax. Accordingly, the margins are not a direct calculation of profit.

Table 1: Hong Kong Margin Analysis (year to 30 June 2005)

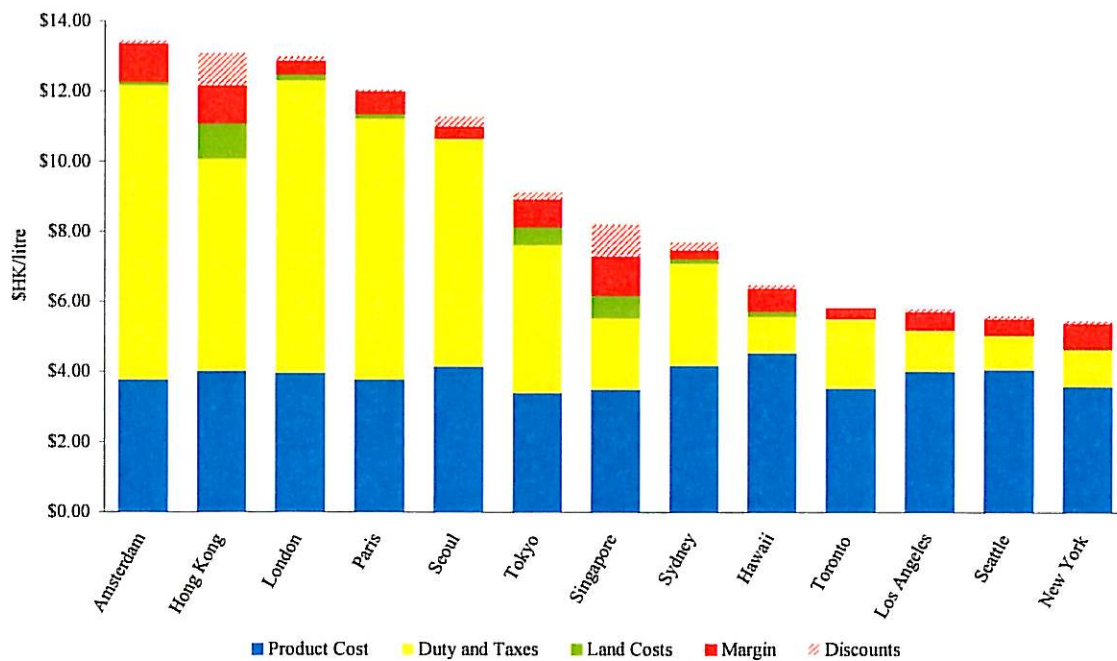
| | Regular Petrol \$/litre | ULSD Diesel \$/litre |
|----------------------------------|----------------------------|-------------------------|
| Pump price | 12.06 | 7.23 |
| Typical discounts | 0.93 | 1.45 |
| Price after discounts | 11.13 | 5.78 |
| Excise/duty | 6.06 | 1.11 |
| Product cost | 3.00 | 2.86 |
| Gross margin | 2.07 | 1.81 |
| Land | 1.02 | 1.02 |
| Construction costs | 0.14 | 0.14 |
| Operating costs | 0.36 | 0.36 |
| Credit card commission | 0.05 | 0.05 |
| Government rent and rates | 0.07 | 0.07 |
| Terminal storage | 0.08 | 0.08 |
| Distribution | 0.06 | 0.06 |
| Net margin | 0.29 | 0.02 |
| As % of ex-duty pump price | 4.8% | 0.3% |
| As % of ex-duty discounted price | 5.5% | 0.5% |

(II) International Margin Comparison

Due to data limitations, we could only make a comparison of gross margins after land costs between a number of international cities.⁷

We compared the individual margins for petrol and diesel, and then the combined margin for petrol, diesel and non-fuel items, such as snack-foods. Of these, the most robust indicator of comparative margins is likely to be the combined margin because all activities undertaken at a PFS site should be contributing towards the recovery of the fixed costs of the PFS site.

Chart 1: Petrol Pump Price Component Breakdown: International Comparison, October 2005 (HK\$/litre)

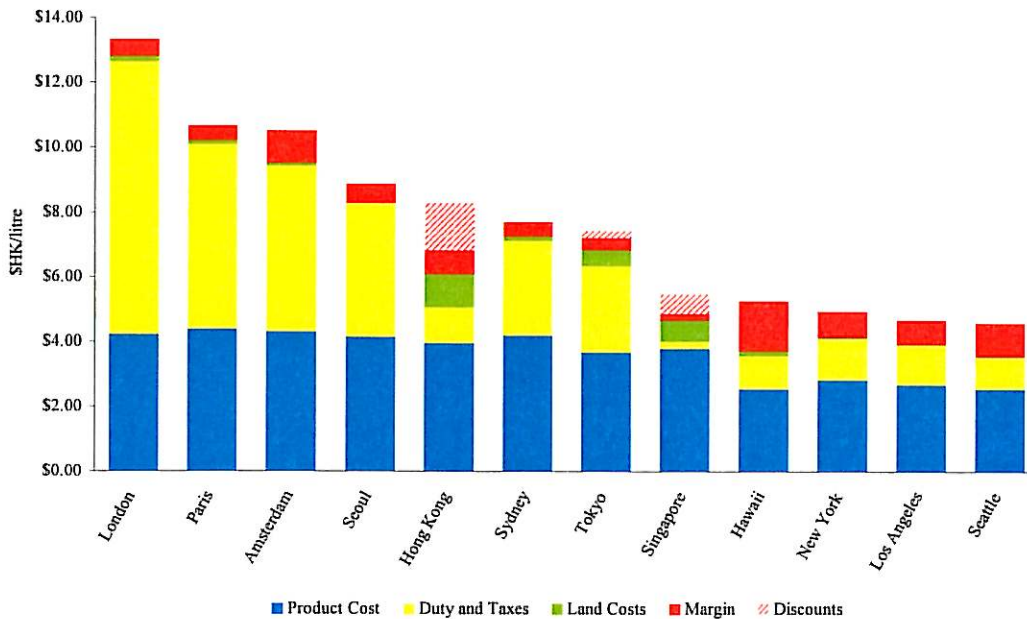


Notes: (i) Comprehensive public information on discounts for Toronto was not available, as discounts are generally fragmented and opaque. The margins shown will therefore be overestimated, to the extent that sales are discounted. (ii) Comprehensive public information on land costs for Toronto and Seoul was unavailable. The margins shown will therefore be overestimated. (iii) Price data for Sydney is from September 2005.

⁷

Ideally our comparison of margins between cities would be based on *net* margins but the detailed data required for such an analysis was simply not available. However, our analysis involves more than a simple gross margin estimate because we were able to exclude some of the more significant costs. Land costs tend to be the most significant costs after the cost of the product itself. Terminal storage costs also have been taken into account within the product cost estimates, either directly or through the use of wholesale prices for product costs.

Chart 2: Diesel Pump Price Component Breakdown: International Comparison, October 2005 (HK\$/litre)



Notes: (i) Comprehensive public information on diesel retail and wholesale prices were unavailable for Toronto. (ii) Diesel discounts in the United States, Sydney, Seoul, London, Paris and Amsterdam differ between customers and comprehensive, public data on which to make a meaningful comparison is unavailable. The margins shown will therefore be overestimated, to the extent that sales are discounted. (iii) Comprehensive public information on land costs for Seoul was unavailable. The margins shown will therefore be overestimated (iv) Retail prices and product costs for the United States are for December 2004, as comprehensive public information for 2005 was unavailable.

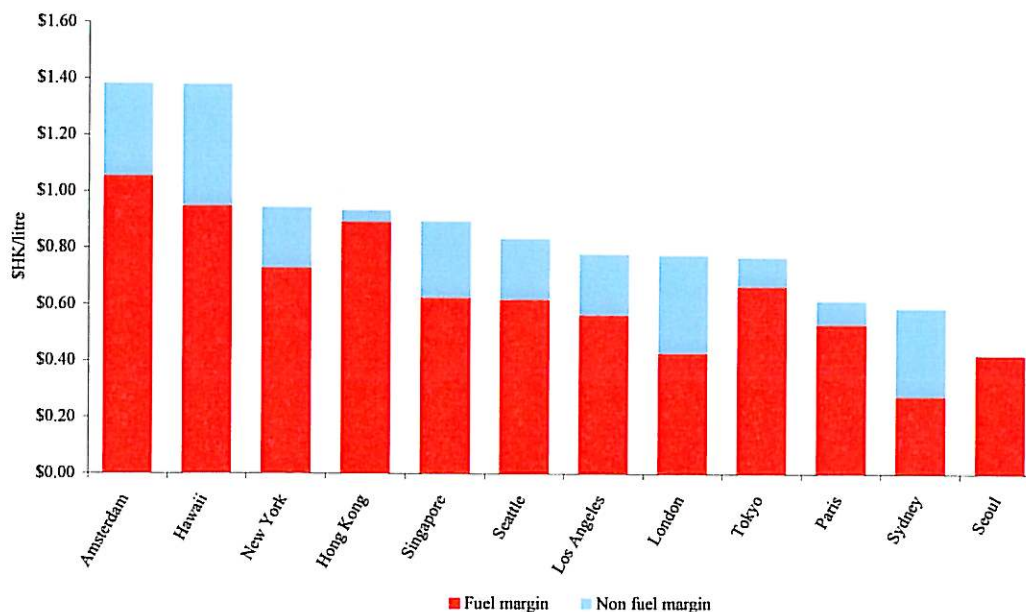
The above-analysis of international retail margins implies that Hong Kong gross retail margins after land costs are at the higher end of the range of comparable metropolitan cities for petrol.

The picture for diesel is less clear due to the limited publicly available information on diesel discounts for most of our surveyed markets. Hong Kong's gross margins for diesel are significantly higher than the margins in Tokyo and Singapore, the two markets for which we have information on diesel discounts. While Chart 2 may overstate the diesel margins in other markets because we had to use pump prices, the qualitative evidence suggests that discounts for diesel, particularly in Europe, are smaller and less widespread than in Hong Kong: e.g. in London, the highest discounts we found were 3% off the pump price compared to Hong Kong discounts of up to 20%. Of the markets in Chart 2 with gross margins above Hong Kong's, Hawaii, Amsterdam and Seattle would likely remain above Hong Kong even if substantial diesel discounts were available, while New York and Los Angeles would fall below Hong Kong if modest diesel discounts were available. Accordingly, in our assessment, while the gross margins for diesel in Hong Kong are in the upper half of the range of the surveyed cities, it is unlikely that Hong Kong is an outlier.

Hong Kong's combined gross margin after land costs across revenue from petrol, diesel and

non-fuel sales is at the upper end of the mid-range of combined gross margins after land costs in the markets we surveyed, due mainly to the lower non-fuel sales in Hong Kong.⁸ That is, the relative ranking of Hong Kong in our surveyed markets somewhat improves if margins are viewed on a combined basis rather than if petrol and diesel margins are viewed in isolation.

Chart 3: Combined Gross Margin across Fuel (Petrol and Diesel) and Non-Fuel Revenue



Further, if the net difference in construction, labour and credit card commission costs between Hong Kong and the United States is taken into account, the combined gross fuel and non-fuel margin after land costs in Hong Kong, ends up being broadly comparable with those of Seattle, New York and Los Angeles.

In conclusion, Hong Kong’s gross margins after land costs are on the higher side of the surveyed markets, and this is only partly explained by Hong Kong’s higher operating costs and lower non-fuel revenue. However, Hong Kong’s combined gross margins after land costs are not so out of line with combined gross margins after land costs in other markets that alone they would raise concerns about collusive behaviour.

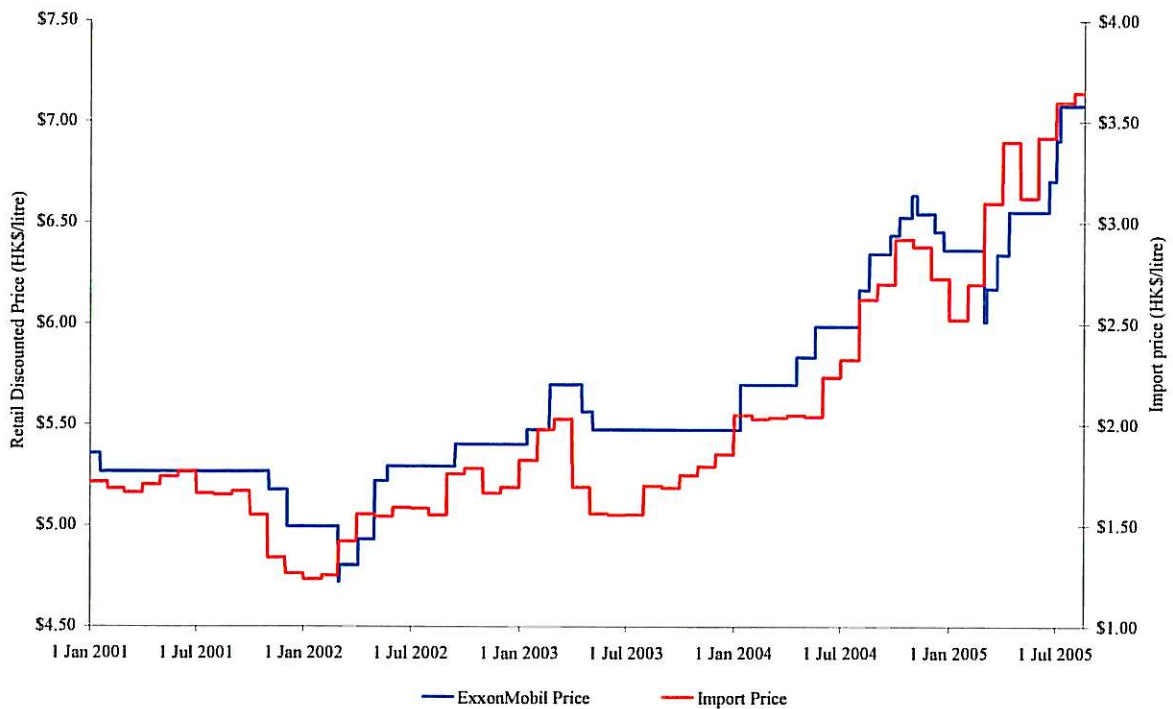
⁸ A number of PFS sites also supply auto-LPG. For reasons discussed in Annexure 10.2, we have taken the view that the retailing of auto-LPG does not significantly affect the overall fixed costs associated with retailing petrol and diesel and that, as a result, throughput of auto-LPG sales can be excluded from our margin calculation. As diesel sales through PFS sites form a lower percentage of auto-fuel sales than petrol in the majority of the markets where we could not find data on diesel discounts, the lack of data on diesel discounts affects the comparison of combined margins less than a direct comparison of diesel margins.

(B) Price Setting and Adjustment Practices

The widely held public perception that prices in Hong Kong are very similar across companies and change at the same time is correct. However, such pricing behaviour is commonplace even in highly competitive markets for the supply of auto-fuel.

There is also a perception that oil companies rapidly increase their prices following an import price increase, but are slower to reduce their prices in response to import price decreases. However, as Chart 4 illustrates, ExxonMobil's diesel price has closely tracked increases and decreases in import prices over recent years, suggesting that this perception is incorrect.⁹

Chart 4: ExxonMobil's Retail Discounted Diesel Price versus Import Price



We found that the following aspects of pricing in the Hong Kong auto-fuel market could lead to valid competition concerns:

- petrol prices are higher than in most other cities surveyed, even after discounts;
- prices change infrequently compared to most overseas markets, where prices move more in one day or week than they do in a month in Hong Kong; and
- prices are almost the same across Hong Kong showing little, if any, geographic variation.

⁹ ExxonMobil's prices have been taken as broadly indicative of all retailers' price movements. A similar pattern would emerge if pricing data for the other companies was used – including for petrol.

However, this behaviour could also be rationally explained by the following particular features of the Hong Kong market:

- the absence of geographic price variation may reflect that the price competition in Hong Kong is through discount and loyalty schemes that apply to a customer's purchases across an oil company's PFS network. As a result, competition in Hong Kong occurs by type of customer rather than on a geographic basis; and
- Hong Kong is totally dependent on imports of fuel, with the periodic shipment of auto-fuel by large tanker encouraging a 'smoothing out' of retail prices.

(C) Assessment of Actual Behaviour

Our conclusion is that, based on the available data, the margins indicate that the Hong Kong auto-fuel market is not as competitive in terms of pricing as some other markets. However, the actual pricing behaviour of Hong Kong oil companies is not so different to behaviour in a competitive market, especially when valid Hong Kong-specific factors are taken into account and, therefore, the Hong Kong margins do not provide a strong indicator that collusion is occurring.

1.3.3 Step 3: What would be the outcome under overseas competition laws?

The United States courts apply a two part test to determine whether an inference of collusion is legally warranted, which for the purposes of this study provides a reasonable proxy for competition law approaches in developed markets:

- (1) Is there evidence of any factors that tend to exclude the possibility that the oil companies have acted independently in maintaining parallel prices?
- (2) If the answer to (1) is yes, is there evidence that the oil companies could present in rebuttal to show that they have not entered into a price fixing agreement?

We applied the 'part 1' factors typically identified by United States courts to the Hong Kong auto-fuel market:

- **Motive to conspire:** High fixed costs and undifferentiated products may provide a motivation for competitors to conspire to hold retail prices high;
- **Opportunity to conspire:** The Hong Kong practice of publicly announcing pump price changes creates an opportunity to conspire, but this applies only to pump prices and not to discounted prices, which are the 'real' prices;
- **High level of inter-firm communications:** As there are no powers to compel the production of information, we have not been able to investigate whether the oil companies are privately communicating with each other;
- **Irrational acts or acts contrary to a company's economic interest, but rational if the collusion existed:** By smoothing out fluctuations in product costs, oil companies may be operating against their own economic interests, since there may be a competitive advantage to be obtained by reducing prices before competitors. It could also be argued that the decision by all oil companies to stock only 98 RON petrol (and

not also 95 RON) is contrary to their own interests because the ability to offer another cheaper octane rating may give a firm a competitive advantage; and

- **Departure from normal business practices:** Pump prices change less frequently in Hong Kong than in other markets and exhibit little, if any, geographic variation, which is also unusual compared to other markets.

In answer to this 'part 1' evidence, the oil companies would likely provide the following 'part 2' rebuttal evidence based on the unique features of the Hong Kong market:

- there may be no parallel pricing between the oil companies once discounts are taken into account;
- movements in retail prices reflect changes in underlying product costs;
- Hong Kong's dependence on imports means smoothing can be a legitimate business practice;
- the relatively small size of PFS sites may mean there is insufficient space to sell multiple octane products;
- discounts are not transparent, so it would be difficult to detect hidden price cuts and therefore sustain coordination; and
- the lack of geographic price variations is offset by the prevalence of loyalty based discounts which are well-suited to the Hong Kong market.

Taken as a whole, the evidence available to the Consultancy Team would be unlikely to support a successful prosecution for collusion if Hong Kong had general or sector-specific competition laws.

The more likely explanation of Hong Kong's higher margins is the following features particular to the market:

- as the oil companies import all auto-fuel from the same limited number of refineries, they have similar cost bases and do not have strong incentives or opportunities to undercut each other's prices;
- the market is highly concentrated between three major oil companies: Shell, Chevron and ExxonMobil;
- the three smaller oil companies, CRC, Chinaoil and Sinopec, do not have sufficient scale to provide a significant competitive threat to the three major oil companies; and
- the comparison of gross margins after land costs may not fully reflect higher Hong Kong costs. The oil companies face significant fixed costs yet the overall scale of the market is limited and declining: diesel sales volumes have fallen 25-30% since 2000, mainly as a result of taxis and minibuses converting to LPG.

1.4 Recommendations

1.4.1 Collusion

(A) Recommendation 1: Anti-cartel and Merger Rules

As there is no clear evidence of any current collusive behaviour in the Hong Kong auto-fuel market, urgent intervention to address collusion is not required. However, we believe that preventive measures or safeguards are warranted over the longer term.

As a general competition law would adequately address the risks of collusion in the auto-fuel industry, the Government should await the outcome of the separate competition policy review.

If a decision is taken not to proceed with a general competition law, the Government should consider sector-specific safeguards to prevent cartel behaviour and to allow for review of mergers which may substantially lessen competition in the auto-fuel market.

Should the Government decide to legislate on a sector-specific basis, we recommend both criminal and civil penalties for breaches of the anti-cartel provisions, consistent with international best practice. As there is limited experience of competition laws in the Hong Kong economy, the Government could consider a phased approach, starting with civil penalties and moving to criminal penalties in three to five years.

Any sector-specific merger rules should be modelled on those which apply under the Telecommunications Ordinance. The merger provisions should apply to acquisitions of assets, including leases through the Government PFS allocation system, to address the risks of undue concentration of PFS sites in the hands of one oil company, either in a local area or territory wide.

(B) Recommendation 2: Regulatory Framework

Should sector-specific laws be introduced, an auto-fuel sector-specific regulator should be established to ensure independence. As we anticipate that the workload is likely to be limited and uneven, an Auto-fuel Commissioner could be appointed to be available 'on call' during a fixed term and he or she could assemble a temporary team drawn from Government Departments (e.g. Department of Justice) or from external sources when required to investigate mergers or complaints of anti-competitive conduct.

1.4.2 Competition and Pricing

(A) Recommendation 3: Modify Site Allocation Process

The sealed, 'single shot' tender currently used by the Government to allocate PFS sites arguably can result in higher land premiums than open auctions where the value which bidders (i.e. the market) place on the property being sold is visible. Replacing this system with a multi-round ascending auction would allow each bidder to see other bids (without identifying the bidders so as to reduce collusion risks) and to adjust its own bids.

The notice period for upcoming tender opportunities (six weeks on the last occasion) is too short for bidders to properly construct a business case and we recommend that the notice period be extended to a minimum of three months and ideally to six months.

(B) Recommendation 4: Reduce Restrictions on PFS Site Use

The scope for increased non-fuel revenues in Hong Kong is limited compared to other jurisdictions because PFS sites are small by international standards, most sites are located near standalone shops and most Hong Kong shoppers do not own a car. However, upwards pressure on auto-fuel prices could be reduced if the oil companies were able to recover some of their fixed costs through increased non-fuel revenues. There would also be opportunity for more competition based on product differentiation, with potential entry by alliances with supermarkets, convenience stores or fast food outlets.

Accordingly, we recommend that restrictions in Government leases on non-fuel activities at PFS sites be relaxed. Additionally, where new PFS sites are established in new towns, planning authorities should endeavour to create larger sites that would allow for increased non-fuel use.

We further recommend that the planning, environmental and safety approvals process for PFS sites and the process for conversion of private sites to PFS use be streamlined.

Facilitating the earlier opening of new or converted PFS sites would help consumers benefit more quickly from competition in a local area and help reduce the operators' costs by extending the operational life of the site.

1.5 Conclusion

Whilst we believe that these recommendations could protect and further promote competition in Hong Kong's auto-fuel industry, it is also important to bear in mind the limits of what can be achieved, particularly in terms of reducing prices.

Retail auto-fuel prices are largely driven by international crude oil prices, which are beyond Hong Kong's ability to influence. Regulation also cannot change the inherent features of the Hong Kong auto-fuel market, particularly its small scale. Wider considerations also need to be taken into account when deciding auto-fuel policy, such as the public concern over air pollution.