



Economic Development and Labour Bureau  
Government of the Hong Kong Special Administrative Region

## STUDY OF THE AUTO-FUEL RETAIL MARKET

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# 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-fuel<sup>1</sup> 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;<sup>2</sup>
- 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:

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<sup>1</sup> 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.

<sup>2</sup> 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'.<sup>3</sup>

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;<sup>4</sup> and

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

<sup>4</sup> Our model is based on a combination of oil company data and non-confidential data. The non-confidential data has

- 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.<sup>5</sup>

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.<sup>6</sup> 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

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been verified against oil company data, where confidentiality requirements permit, and otherwise against publicly available information.

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

<sup>6</sup> 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)').

of commercial trucks and minibuses that refuel through retail PFS and LPG stations rather than rely on bulk deliveries to their own premises; and

- **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)

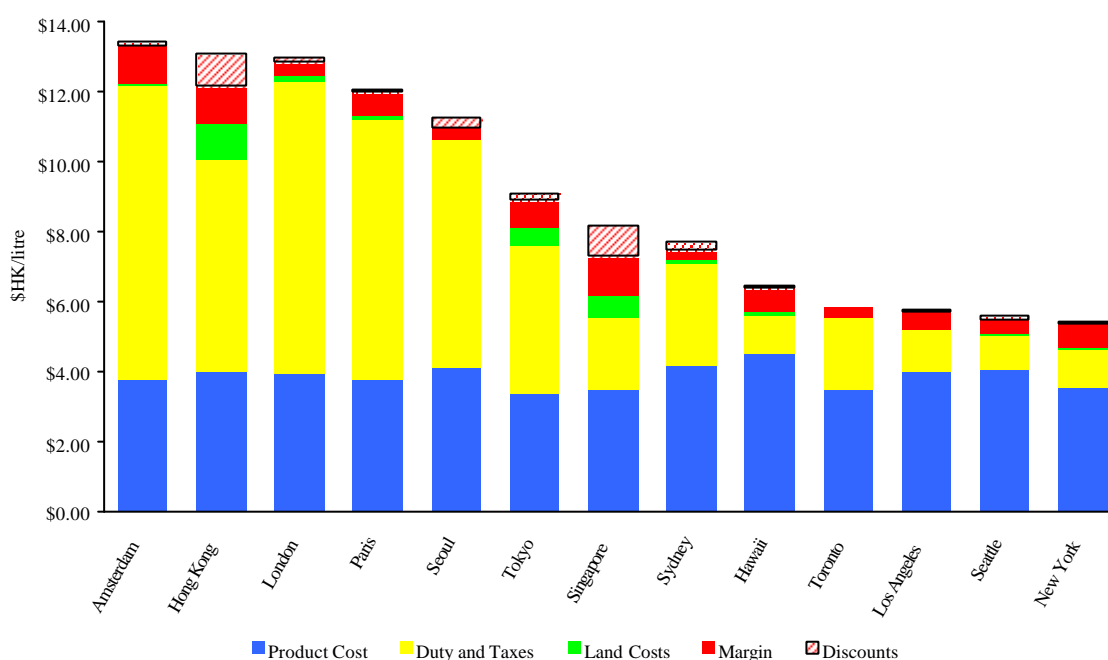
	Regular Petrol \$/litre	ULSD Diesel \$/litre
Pump price	12.06	7.23
Typical discounts	0.93	1.45
Price after discounts	11.13	5.78
Excise/duty	6.06	1.11
Product cost	3.00	2.86
<b>Gross margin</b>	<b>2.07</b>	<b>1.81</b>
Land	1.02	1.02
Construction costs	0.14	0.14
Operating costs	0.36	0.36
Credit card commission	0.05	0.05
Government rent and rates	0.07	0.07
Terminal storage	0.08	0.08
Distribution	0.06	0.06
<b>Net margin</b>	<b>0.29</b>	<b>0.02</b>
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.<sup>7</sup>

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)

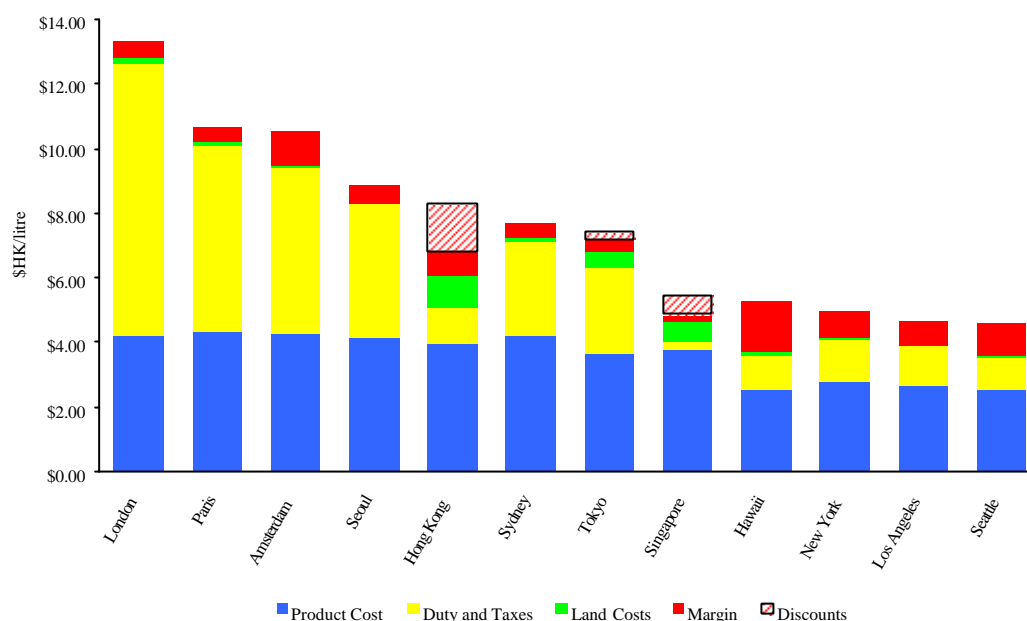


Notes: (i) Comprehensive public information on discounts for Toronto was not available, as discounts are generally fragmented and opaque. The margins shown will therefore be overestimated, to the extent that sales are discounted. (ii) Comprehensive public information on land costs for Toronto and Seoul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

<sup>7</sup> 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)



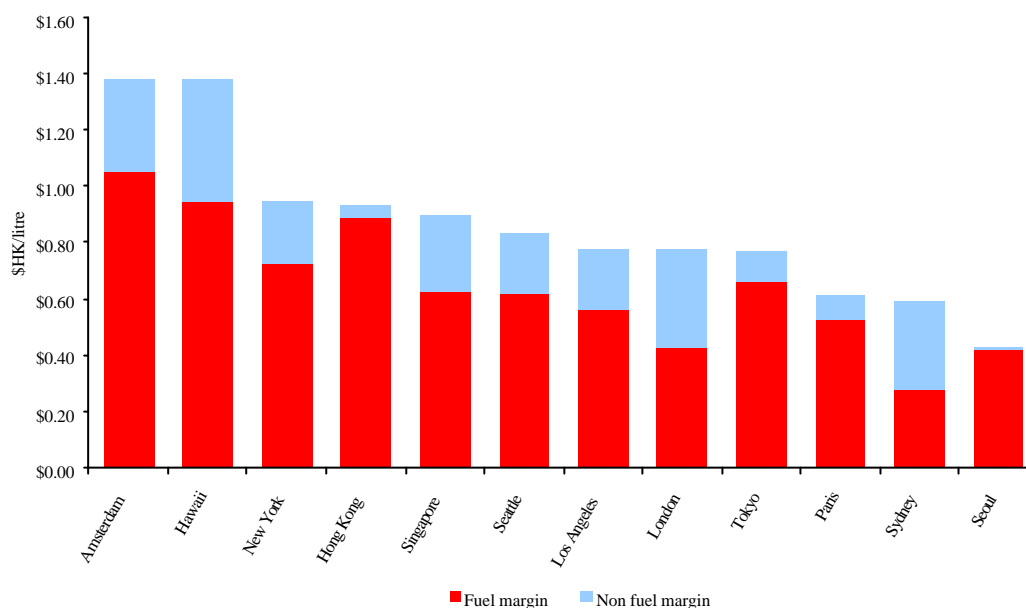
Notes: (i) Comprehensive public information on diesel retail and wholesale prices were unavailable for Toronto. (ii) Diesel discounts in the United States, Sydney, Seoul, London, Paris and Amsterdam differ between customers and comprehensive, public data on which to make a meaningful comparison is unavailable. 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.<sup>8</sup> 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.

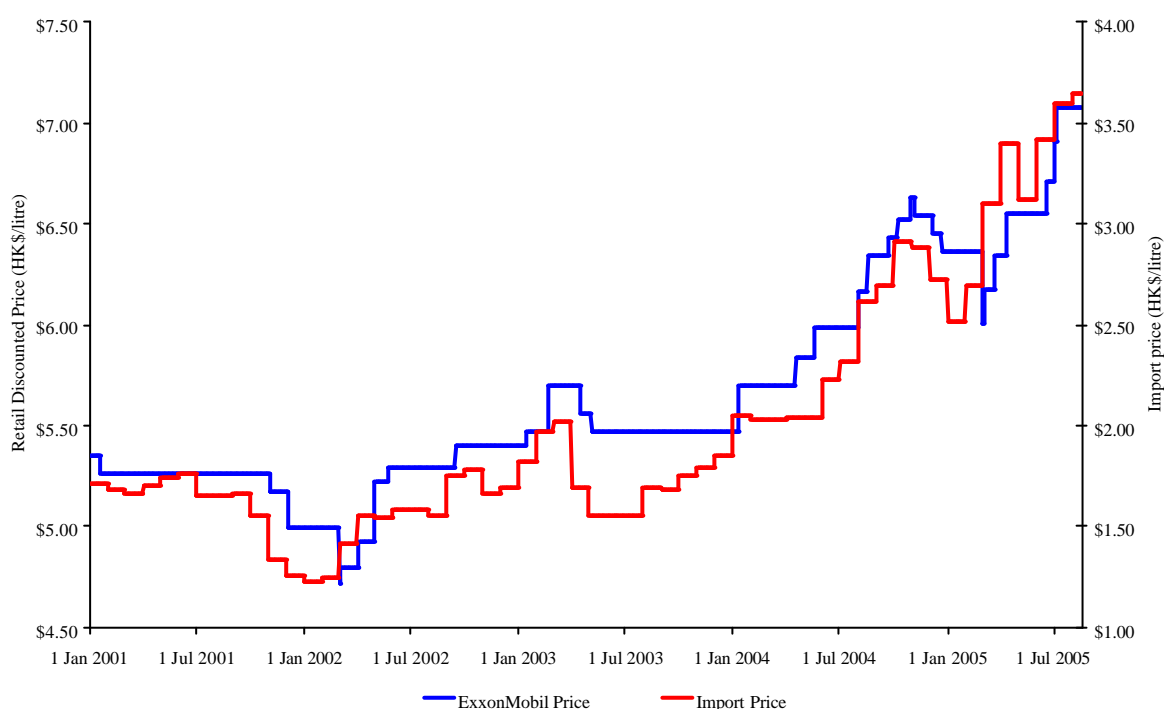
<sup>8</sup> A number of PFS sites also supply auto-LPG. For reasons discussed in Annexure 10.2, we have taken the view that the retailing of auto-LPG does not significantly affect the overall fixed costs associated with retailing petrol and diesel and that, as a result, throughput of auto-LPG sales 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.<sup>9</sup>

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.

<sup>9</sup> 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.

## 2. Introduction

### 2.1 Background

This study was prompted by concerns that Hong Kong's auto-fuel prices are among the highest in the world and that, as prices are perceived to be uniform across retailers and to move simultaneously, the oil companies may be colluding.<sup>10</sup>

Auto-fuel is an important input to the Hong Kong economy. While Hong Kong has one of the lowest levels of car ownership in the world, many Hong Kongers rely on diesel-fuelled buses and minibuses as their primary means of transport. Hong Kong has also positioned itself as a major logistics hub for Southern China and local diesel prices have an impact on the cost of transporting containers to and from Hong Kong terminals.

### 2.2 Approach

The Consultancy Team used techniques, practices and procedures that would generally be employed by a competition authority conducting a collusion investigation. However, in the absence of powers to compel the production of information, we were reliant on the willingness of industry participants to be involved in the study. We conducted over 35 interviews with Government Departments, consumer groups, transport associations, potential entrants, oil companies, economists and academics.<sup>11</sup>

For the purposes of modelling costs and margins for retail auto-fuel supply in the Hong Kong market, data requests were sent to all the oil companies. Two oil companies, Feoso and Concord, declined to participate in the study. The other oil companies, Shell, ExxonMobil, Chevron<sup>12</sup>, Chinaoil, Sinopec and CRC, responded to the data requests, although the extent and detail of the responses varied significantly.

These oil companies expressed reasonable concerns about the confidentiality of commercially sensitive information provided to us – a competition investigation could have a counterproductive effect if competitors were able to obtain information about each other's costs. We agreed to disclose the data in a form that could not be used to reveal information about any individual company.<sup>13</sup> Where we did not have oil company agreement to include their data in the model, we were able to use oil company data (where permitted by the confidentiality arrangements) to verify the reasonableness of our data estimates obtained from non-confidential sources. We also gave the participating oil companies an opportunity to comment on our model. Table 2 below sets out the source of the main data categories in our model.

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<sup>10</sup> The Terms of Reference for the study are attached at Annexure 10.3.

<sup>11</sup> A list of interviewees is set out at Annexure 10.1.

<sup>12</sup> 'Chevron' is the company name while 'Caltex' is the brand under which the company trades.

<sup>13</sup> For confidentiality reasons references to 'oil company data' in this study do not make reference to the actual number of oil companies whose data is included in the relevant data point. In certain cases, we obtained agreement to use information on an individual non-attributable basis.



Table 2: Data Information Sources

Category	Oil company data	Non-confidential data verified from oil company data	Non-confidential data verified from other source
Prices		✓	
Discounts	✓		
Product costs		✓	
Government duties			✓
Land costs			✓
Construction costs	✓		
Operating costs		✓	
Credit card commission	✓		
Government rent & rates	✓		
Terminal storage	✓		
Distribution		✓	
Non-fuel Income		✓	

While not entirely based on oil company data, we are confident our model provides a robust guide to margins in the Hong Kong auto-fuel market.

### 3. Framework for Analysis

The Terms of Reference refer to ‘anti-competitive practices’ and collusion. Our study has focused on investigating whether the oil companies are colluding because this is both the main concern amongst Hong Kong consumers and is the primary focus of competition laws in other markets. Other forms of anti-competitive conduct mainly arise from market dominance by a single firm. Given that there are 8 suppliers in the Hong Kong auto-fuel market and roughly equal market shares between the three main suppliers, Shell, ExxonMobil and Chevron, it is unlikely that any one single firm would be regarded as having a dominant position.<sup>14</sup>

#### 3.1 Overview: Identifying Collusion

Collusion, also called ‘explicit coordination’, occurs where firms agree between themselves to coordinate their prices. Collusion is prohibited by competition laws in most jurisdictions.

Competition laws do not generally prohibit firms monitoring each other’s prices and separately deciding to make parallel adjustments to their own prices. This practice is called ‘tacit collusion’, ‘implicit coordination’ or ‘conscious parallelism’. The United States Supreme Court has said:<sup>15</sup>

*“Tacit collusion, sometimes called oligopolistic price coordination or conscious parallelism, describes the process, not in itself unlawful, by which firms in a concentrated market might in effect share monopoly power, setting their prices at a profit-maximising, supra-competitive level by recognizing their shared economic interests and their interdependence with respect to price and output decisions.”*

Given that collusion is prohibited but ‘implicit coordination’ is not, it is necessary to carefully distinguish between them.

Direct evidence of collusive agreements, such as emails and minutes of meetings, is often unavailable. In the absence of a ‘smoking gun’, courts and regulators face two difficulties when trying to infer from other evidence whether collusion is occurring:

- (a) the same market behaviour can be explained by either collusion or ‘implicit coordination’; and
- (b) similar market behaviour can also exist in both competitive and uncompetitive markets, particularly for the supply of homogeneous products like auto-fuel. Competition in the supply of homogeneous products is price-based.

In an intensely competitive market, competitors’ prices will inevitably be very similar because they have to respond quickly to each other’s price changes, otherwise they lose business. On the other hand, limited product differentiation in the supply of homogeneous

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<sup>14</sup> We have reviewed whether the European concept of ‘joint dominance’ would apply: see chapter 7.

<sup>15</sup> Brooke Group Ltd v Brown & Williamson Tobacco Corp, 509 US 209, 227 (1993), cited in G J Werden (2004), “Economic Evidence on the Existence of Collusion: Reconciling Antitrust Law with Oligopoly Theory” Antitrust Law Journal Vol 71, 719 p764.

products facilitates collusion because it is easier to agree on and monitor prices when there is no need to allow for non-price differences. However, the same product homogeneity also makes it easier for competitors to closely coordinate their prices in concentrated markets even without an agreement.

This means that regulators and courts, in the absence of direct evidence of a collusive agreement, need to determine whether coordinated pricing is actually occurring in the market to assess whether an allegation of collusion has any validity. If there is no evidence of coordinated pricing, then it is unlikely that either implicit coordination or collusion is occurring. If there is evidence of coordinated pricing, it can be treated as no more than circumstantial evidence of collusion and it is necessary to go on to examine other evidence of market behaviour to make an informed assessment as to whether implicit coordination or collusion is the more likely cause.

With these issues in mind, we adopt the following methodology to assess the competitiveness of the Hong Kong auto-fuel market:

- Step 1:** We assess whether there is a material risk of coordinated conduct, regardless of whether it is collusion or implicit coordination. Whether coordination is feasible will depend on the structure of the market, such as the level of concentration, the presence of significant barriers to entry, the extent of vertical integration and the degree of market transparency.
- Step 2:** We assess whether margins in the Hong Kong auto-fuel market are consistent with the outcomes in overseas markets. This margin analysis allows us to better calibrate the level of concern about the state of competition in the Hong Kong auto-fuel market. If, for example, the margins earned by the oil companies are similar to those in markets which have been found to be competitive, collusion is unlikely to be occurring. If Hong Kong margins are comparatively high, it is then necessary to assess whether the actual pricing behaviour of the oil companies in the Hong Kong auto-fuel market is similar to behaviour expected in a competitive market and, if not, whether it can be rationally explained by the particular features of the Hong Kong market.
- Step 3:** If there is price coordination in the Hong Kong auto-fuel market which cannot be rationally explained, it is then necessary to consider whether a court would find that this is likely to be the result of collusion between the oil companies rather than implicit coordination. We assess the evidence against the legal standards which apply in other jurisdictions and against the COMPAG Guidelines.

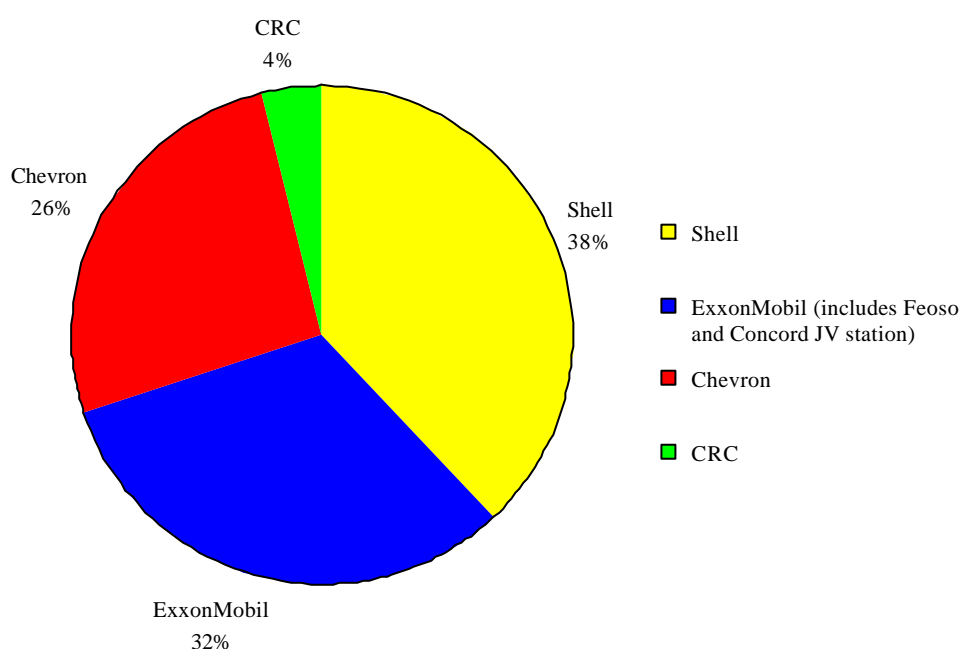
## 4. Hong Kong Market Description

### 4.1 Basic Market Facts

The Hong Kong auto-fuel market is significantly smaller than most other markets. Total consumption of auto-fuel in Hong Kong is approximately 1,500ML per year,<sup>16</sup> compared to 34,000ML in New York State, 71,000ML in California, 35,000ML in the United Kingdom and 17,000ML in Australia.<sup>17</sup> Total consumption in Singapore is approximately 1,100ML per year.

There are eight retail suppliers in the Hong Kong retail auto-fuel market: Shell, ExxonMobil, Chevron, CRC, Feoso Oil, Concord Oil and two recent Mainland Chinese entrants, Sinopec and Chinaoil.<sup>18</sup> Their market shares as at 2004 are depicted in Chart 5,<sup>19</sup> which indicates that the three largest suppliers, Shell, ExxonMobil and Chevron accounted for over 95% of auto-fuel sales in Hong Kong.

Chart 5: Total Market Shares, 2004 (by volume)<sup>20</sup>



*Source: Industry sources, estimated market shares.*

<sup>16</sup> Including direct sales to large users.

<sup>17</sup> Figures for the United Kingdom, Australia and Singapore are for sales at retail sites only.

<sup>18</sup> Chinaoil and Sinopec are the largest auto-fuel suppliers in Mainland China.

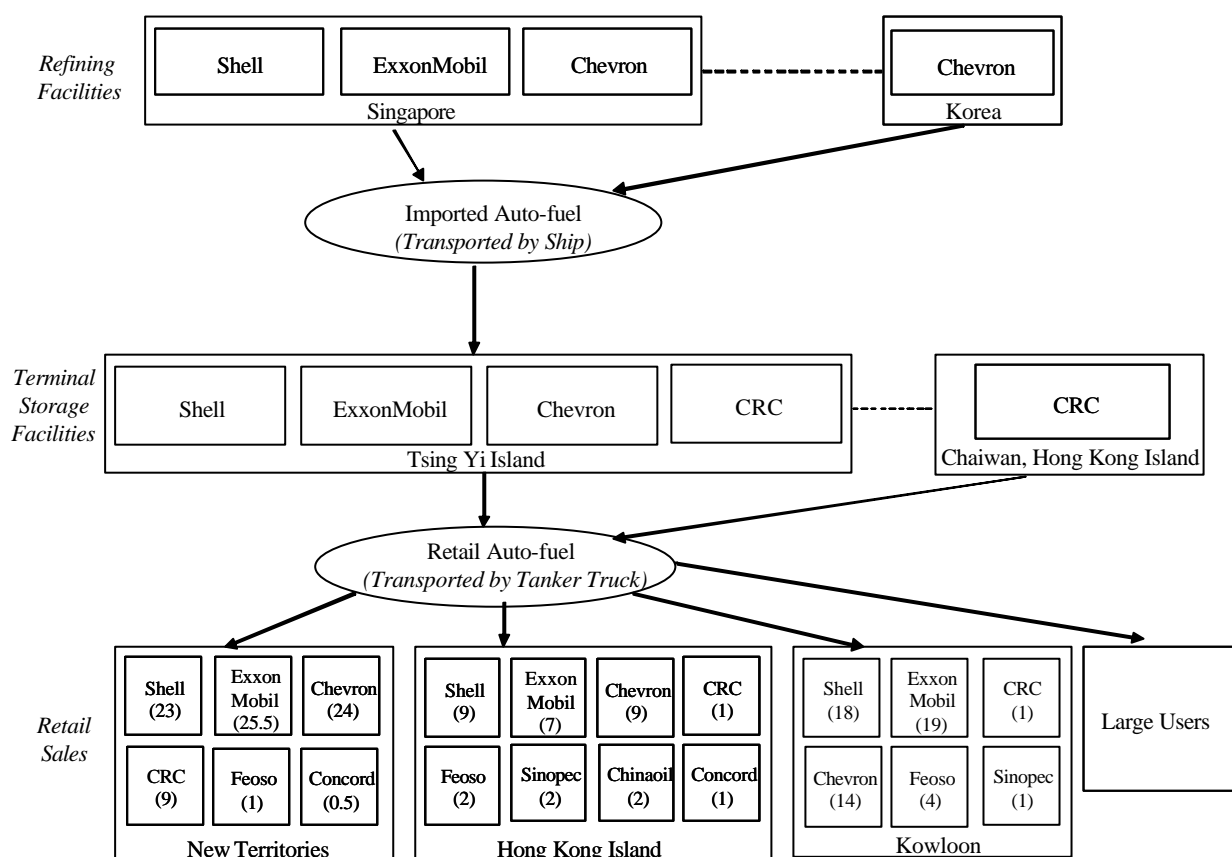
<sup>19</sup> For the purposes of assessing market shares and our subsequent market structure analysis, Feoso's stations have been counted with ExxonMobil's.

<sup>20</sup> Sinopec and Chinaoil have each had only two sites operational since late 2004, hence neither registered a significant market share in 2004.

There are both vertically integrated and non-vertically integrated suppliers in the Hong Kong auto-fuel market. Shell, ExxonMobil, Chevron and CRC have vertically integrated operations from their Hong Kong-based terminal storage facilities to the pump. Shell, ExxonMobil and Chevron import their auto-fuel from their Singapore-based refining facilities while CRC purchases its auto-fuel on the open market.

Neither Chinaoil nor Sinopec has storage facilities in Hong Kong and both purchase their auto-fuel in Hong Kong from the other oil companies. The two independent operators, Concord and Feoso, are aligned with ExxonMobil.<sup>21</sup> Chart 6 sets out a snapshot of the Hong Kong auto-fuel market.

Chart 6: A Snapshot of the Hong Kong Auto-fuel Market



Note: Numbers in brackets denote the number of retail PFS sites in each location.

<sup>21</sup> Feoso's 7 PFS sites are co-branded with ExxonMobil and only Esso fuel is available at Feoso stations. Concord Oil owns one station on Hong Kong Island and has a 50:50 joint venture with ExxonMobil in Tseung Kwan O.

## **4.2 Organisational Structure for Retail Sales**

### **4.2.1 Sales at Retail Sites**

Traditionally, most oil companies have used ‘dealers’ to operate their PFS sites.

Dealership agreements are generally for a three to five year period. The dealer is typically paid a commission on sales. The oil company is responsible for delivery of product to PFS sites, promotions and establishing and enforcing standardised operating procedures. The dealer is responsible for the day-to-day operations of the PFS site.

Dealers typically take ownership of the auto-fuel when it is delivered and the oil company will recommend a retail price to the dealer. However, while contractually not bound to the recommended prices, dealers rarely depart from them. Dealers are responsible for the sale of non-fuel items, such as drinks and snacks, but also generally adopt the oil company’s recommended prices.

Many oil companies are moving to an ‘agent operated’ approach to obtain greater control over PFS operations. The agent is, in effect, an outsourcing provider of the staff to operate the PFS site. The agent does not take ownership of the auto-fuel and under this approach the oil company has formal legal control over retail pricing. The agent is usually paid a salary rather than a commission on sales.

## **4.3 Supply Chain**

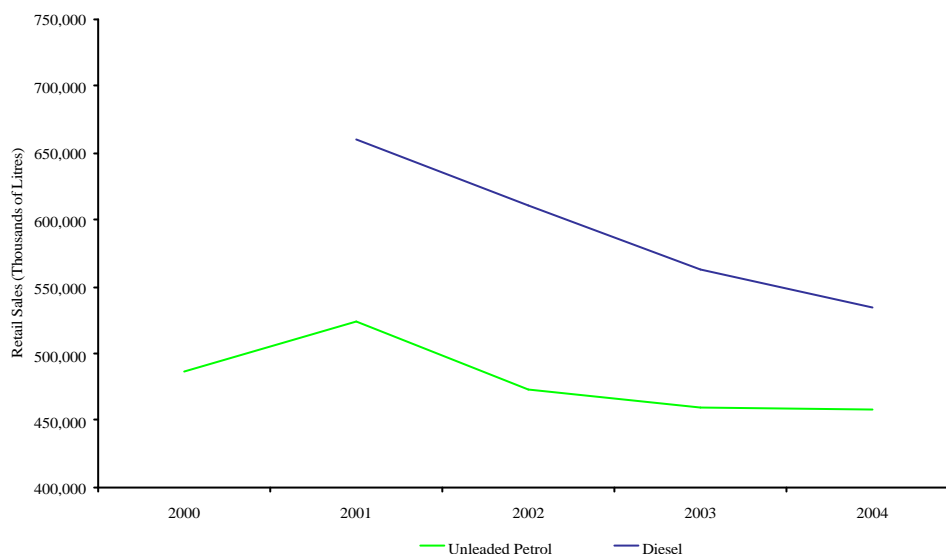
### **4.3.1 Import Arrangements**

As there are no refining facilities in Hong Kong, all auto-fuel must be imported in a refined form. Imports arrive by sea, principally from Singapore but also from Japan, South Korea, Thailand and the Philippines. The major oil companies typically receive multiple shipments of each refined auto-fuel product each month, usually via 30,000 tonne tankers which are capable of transporting different auto-fuels simultaneously.

The import prices paid by the local operations of Shell, Chevron and ExxonMobil to their related upstream refineries are typically related to an oil industry benchmark price, called Platt’s Oilgram. We understand that a new entrant would be able to purchase refined auto-fuel on the open market at similar prices.

The Hong Kong market for auto-fuel is declining, mainly as a result of the Government’s environmental policies to transition taxis, minibuses and other commercial vehicles to LPG. As Chart 7 illustrates, diesel imports have decreased approximately 25-30% since 2000. Petrol imports have also declined, but to a lesser extent.

Chart 7: Trends in Retail Sales Volumes for Unleaded Petrol and Diesel



Source: Petrol and diesel retail sales figures are derived by adjusting import figures from the Census and Statistics Department for re-exports and, for diesel only, an additional estimate of direct sales based on information from industry sources.

#### 4.3.2 Auto-fuel Sourced from Mainland China

The volume of auto-fuel sales in Hong Kong also seems to be materially impacted by the level of auto-fuel sourced, legally and illegally, from Mainland China.

Presently, a litre of diesel in Hong Kong costs approximately double the price and a litre of petrol costs approximately three times the price paid in Shenzhen.<sup>22</sup> Regulations in Hong Kong allow drivers of licensed vehicles to import a full tank of fuel from Mainland China free of duty, and many commercial fleet operators meet most of their fuel requirements by filling up before returning across the border to Hong Kong.<sup>23</sup> During the recent fuel shortage in Shenzhen and Guangdong, many cross-border delivery drivers elected to temporarily leave their vehicles over the border and turn down orders rather than pay higher auto-fuel prices in Hong Kong.<sup>24</sup>

Cross-border refuelling has a lesser impact on petrol sales as fewer private drivers have the necessary permit to allow them to drive across the border.<sup>25</sup>

Illegally imported auto-fuel is sold from black market filling stations or directly from tankers. As Chart 8 illustrates, the efforts of the Customs and Excise Department have resulted in an increase in the number of cases of seized fuel.

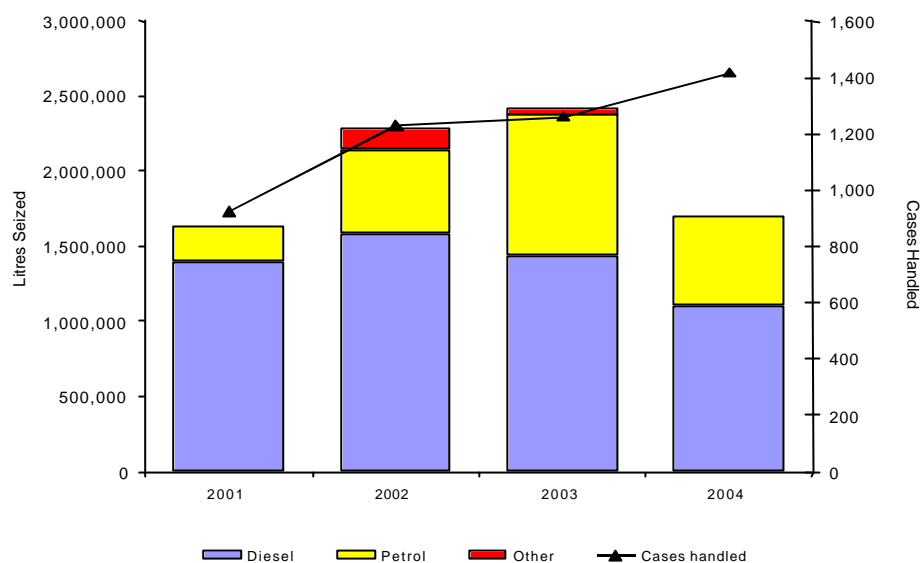
<sup>22</sup> The Government in Mainland China places regulatory controls on the domestic price of oil products.

<sup>23</sup> See Regulations 12(1)(p) and 12(1)(pa) of the Dutiable Commodities Regulations.

<sup>24</sup> South China Morning Post, “Cross-border deliveries hit by fuel shortage”, 16 August 2005; South China Morning Post, “Fuel shortage shuts half of Shenzhen’s pumps”, 16 August 2005.

<sup>25</sup> As at 30 September 2005, there were approximately 18,700 goods vehicles, 12,300 private cars and 750 buses issued with valid Closed Road Permits.

Chart 8: Illicit Auto-fuel Seizures, 2001 – 2005



Source: Census and Statistics Department

The volume of seized fuel accounts for less than 0.2% of the estimated total volume of auto-fuel sold legally through PFS stations, but there is no accurate evidence of the total volume of illicit fuel that enters the Hong Kong market undetected.<sup>26</sup>

### 4.3.3 Terminal Storage

Shell, ExxonMobil, Chevron and CRC own stand-alone storage facilities on Tsing Yi Island for unleaded petrol, diesel and LPG as well as other products.<sup>27</sup>

Quarterly storage capacity and utilisation data for unleaded petrol, and aggregated data for diesel and gas oil at Tsing Yi Island is available from the Census and Statistics Department. However, as the data only provides a snapshot of utilisation levels at particular dates, it is of limited use. One oil company has indicated that, taking into account import cycles, its own facilities are fully utilised.

The Airport Authority’s construction of a new Permanent Aviation Fuel Facility (‘PAFF’) in Tuen Mun will effectively render the aviation fuel storage tanks on Tsing Yi Island redundant,

<sup>26</sup> Within the last year the total volume of illicit fuel seized has decreased significantly. However, the number of cases handled by the Customs and Excise Department continues to grow, indicating that the average volumes of fuel seized have decreased. This trend is consistent with recent press articles suggesting that increasing numbers of truck and minibus drivers shuttling between Hong Kong and border cities are earning extra income from illegally selling a tankful of petrol bought cheaply in Mainland China. (Daily Times, “Price control in China stirs reverse oil smuggling”, 19 September 2005.)

<sup>27</sup> CRC also has a 2,000 tonne storage facility on Hong Kong Island to which it barges auto-fuel from its Tsing Yi Island facility.



potentially freeing up approximately 14% of storage capacity at Tsing Yi.<sup>28</sup>

The oil companies share each other's storage space and enter into borrow and loan agreements, consistent with practices in other markets. To date, non-integrated downstream suppliers, such as Chinaoil and Sinopec, have been unable to acquire the right to access terminal storage facilities on terms which they regard as commercially reasonable. Instead, they purchase auto-fuel on a wholesale basis, usually delivered directly to their PFS sites. One oil company indicated that it provides terminal access to a downstream competitor for LPG.

## 4.4 Products Offered

### 4.4.1 Auto-fuel

Only two grades of unleaded petrol are currently available in Hong Kong: standard 98 RON petrol and super 98 RON petrol. Shell, ExxonMobil, Chevron, Feoso, Sinopec and Chinaoil retail both grades of unleaded petrol at all stations in their chains. CRC and Concord only sell standard 98 RON unleaded petrol. We understand that there is an approximate 90:10 split between sales of standard 98 RON and super 98 RON, respectively.

Hong Kong's environmental requirements for auto-fuel are among the strictest in the world. From 1 January 2005, all unleaded petrol sold in Hong Kong must meet Euro 4 emission standards and have a maximum sulphur content of 50 parts per million ('ppm').<sup>29</sup> Since 1 April 2002, diesel must meet Euro 4 and ultra low sulphur diesel ('ULSD') requirements. By comparison, the prevailing standard for petrol and diesel in Mainland China (with the exception of Beijing) is Euro 2 with a maximum sulphur content of 500 ppm.

### 4.4.2 Non-fuel Products

While Hong Kong oil companies regard convenience stores as an important dimension of product differentiation between stations, by international standards, non-fuel revenue earned is very low for the following reasons:

- the Lands Department *Conditions of Sale* for PFS sites typically limit the maximum size of a convenience store to 25m<sup>2</sup>. The *Conditions of Sale* also prohibit independent commercial franchises such as McDonalds from operating on a retail site;
- due to the small size of PFS sites and lack of parking space, most customers remain in their vehicle for the entire auto-fuel transaction which means little foot traffic through a convenience store; and
- due to the density of Hong Kong's urban areas, most PFS sites are also situated in close proximity to competing convenience stores and supermarkets, meaning that non-drivers are unlikely to frequent a PFS convenience store.

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<sup>28</sup> See: Census and Statistics Department, Storage capacity and tank stock of oil products, Q1 2005. Significant tank refitting would be required before it could be used to store petrol.

<sup>29</sup> Air Pollution Control (Motor Vehicle Fuel) (Amendment) Regulation 2004.

## 4.5 Identity and Conduct of Buyers

Hong Kong has a relatively small number of private car owners compared to overseas markets. There are fewer than 350,000 licensed private cars and 90.8% of households do not own a car.<sup>30</sup>

In the commercial sector, there are a relatively large number of owner drivers and a smaller number of very large users. An unusual feature of the Hong Kong market is the high proportion of commercial vehicles which refuel at PFS sites because, due to restricted land availability, it is not feasible for most commercial users to store fuel at their own depots.

The largest single consumers of diesel in Hong Kong are the franchised bus operators – the KMB's fleet of 4,080 buses, and the combined operations of First Bus and City Bus with their 1,600 buses. These operators do not pay excise on the fuel used on their franchised routes. Each company has on-site fuelling facilities to which the oil companies deliver fuel, usually daily.

There are a total of 4,350 Public Light Buses or minibuses in Hong Kong. Under the Government's LPG conversion incentive scheme, 48% of minibuses had converted to LPG as at September 2005. The remainder use diesel, which they mainly acquire at PFS sites.

Virtually all of Hong Kong's 18,380 taxis have converted to LPG. Taxis purchase their fuel from combined LPG and PFS sites or the 12 dedicated LPG sites.

## 4.6 Obtaining PFS Sites

### 4.6.1 Importance of PFS Location

As Table 3 shows, both the number and geographic spread of an oil company's PFS sites seem to be the major determinants of its retail market share. Shell, ExxonMobil and Chevron have significant retail presence throughout Hong Kong Island, Kowloon and the New Territories. Being a relative latecomer to the market, CRC has a smaller number of PFS sites, most of which are located in less favourable locations in the New Territories.

Following changes in the PFS site tendering system in 2003, Sinopec and Chinaoil entered the market and acquired eleven and five PFS sites respectively. However, each company currently has only two sites operational on Hong Kong Island. An additional Sinopec site in Kowloon became operational in December 2005. The Hong Kong sites were existing PFS sites when purchased, which facilitated the two oil companies commencing operations relatively quickly.<sup>31</sup> The remaining Chinaoil and Sinopec sites require development consents for new PFS construction and are likely to become operational in early 2006.

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<sup>30</sup> Euromonitor (2002), Gasoline Station Retailing in Hong Kong p11.

<sup>31</sup> At the end of the lease term, Government PFS leases require the operator to leave behind all fixtures such as buildings, structures, tanks and ancillary installations relating to the operation of the PFS.

Table 3: Number of Operational PFS Stations in Hong Kong, 2005

	Hong Kong Island	Kowloon	New Territories	Total
Shell	9	18	23	50
ExxonMobil	7	19	25.5	51.5
Chevron	9	14	24	47
CRC	1	1	9	11
Feoso	2	4	1	7
Concord	1	0	0.5	1.5
Sinopec	2	1	0	3
Chinaoil	2	0	0	2
<b>TOTAL</b>	<b>33</b>	<b>57</b>	<b>83</b>	<b>173</b>

#### 4.6.2 High Cost of PFS

In general, land premiums paid for PFS sites are very high compared to the cost of land in overseas markets.<sup>32</sup> Hong Kong PFS land costs, on a per litre basis, are double Tokyo's land costs and nearly six times London's land costs. For example, Sinopec paid HK\$358.66 million in 2005 for four PFS sites. Chinaoil paid HK\$501 million for five sites in 2004. In 2005, the average real premium paid for a PFS site was nearly HK\$100 million.

#### 4.6.3 Government Designated PFS Sites

The oil companies obtained at least 100 out of their combined 173 PFS sites through the Government land tendering system. Leases for PFS sites are valid for a period of 21 years.

Previous government practice was to grant a new 21-year lease to existing owners upon expiry of a lease, subject to the payment of a land premium. However, since 2000, the Government has required all expired PFS sites to be re-tendered, in an attempt to avoid perpetuating the incumbency of PFS sites by the same oil companies. To further promote competition, since June 2003, the Lands Department has been selling all PFS sites, both existing and new, in 'batches' of four or five sites. A potential purchaser is now able to bid for sites individually, or submit a 'super-bid' for all sites in a given batch.<sup>33</sup>

Approximately ten sites are scheduled for renewal in 2007-2008. These are primarily existing sites and some are located in high traffic areas.

<sup>32</sup> See section 6.1.3.

<sup>33</sup> The 'super-bid' allows tenderers to bid for all PFS sites on offer. If the 'super-bid' is higher than the aggregate of individual bids on those sites, the 'super-bid' wins.

#### 4.6.4 Converted Sites

There are at least 60 PFS sites in Hong Kong which have been converted from other uses. The conversion process typically takes two to three years and, in some cases, up to five years.<sup>34</sup>

If 'PFS use' is permitted under the relevant Outline Zoning Plan, a developer can apply to convert a site by submitting a section 16 Application under the *Town Planning Ordinance* to the Town Planning Board. However, if 'PFS use' is not permitted it is necessary to apply to the Planning Department for a re-zoning (e.g. 'open space' to 'PFS').

Agreeing with the Lands Department a revised land premium to reflect the PFS use appears to be the most time-consuming part of the conversion process. The land premium is assessed having regard to the prices obtained in recent land auctions and likely throughput of the PFS.

#### 4.6.5 Obtaining Approval to Build a PFS Station

Once an oil company has acquired a PFS site through Government tender or private conversion, it must obtain various approvals to construct its PFS, including from the Building Department, Fire Services Department and Environmental Protection Department.

This process can take six to twelve months of the effective operational life of a 21-year lease for Government designated sites.<sup>35</sup>

### 4.7 Discounts

Discounts on the pump price for both petrol and diesel are widely available in the Hong Kong market and historically have been significant. The typical petrol and diesel discounts available in Hong Kong in 2004/05 were HK\$0.93/litre and HK\$1.45/litre respectively,<sup>36</sup> although discounts vary by customer type and volume. These discounts represent 7.7% and 20% respectively, of the average pump prices over the period.

#### 4.7.1 Unleaded Petrol

Discounting is widespread for unleaded petrol sales to both private drivers and fleet accounts. It is common in Hong Kong to receive a straight discount off the pump price when purchasing unleaded petrol, without the need to belong to a loyalty card scheme. CRC is the only retailer currently advertising its 'at the pump' discounts. We understand that Sinopec and Chinaoil also offered universal pump price discounts following their entry in 2004.<sup>37</sup>

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<sup>34</sup> Of the eleven private site conversion applications lodged with the Town Planning Board since 1997, nine were given planning approval with only four applicants successfully negotiating terms with the Lands Department. Only two of these sites have commenced operations as PFS sites, with two converted sites failing to find buyers.

<sup>35</sup> The *Conditions of Sale* generally require an oil company to have a PFS operational approximately two years from the tender date.

<sup>36</sup> For further analysis of typical discounts, see section 6.2.3 and Annexure 10.2(B).

<sup>37</sup> The extent to which these 'at the pump' discounts continue to be available at Sinopec and Chinaoil stations is unclear. Industry sources indicated that Sinopec and Chinaoil are still offering list discounts in the region of 15% in some cases in order to attract customers.

In addition to discounts at the pump, discounts are available through loyalty schemes. There has been considerable growth in the coverage, number and complexity of the various discounts offered by the oil companies through their various loyalty/credit card schemes. It appears that most Hong Kong motorists are members of at least one loyalty scheme. One company indicated that 90% of its petrol customers acquired discounted petrol through loyalty cards.

The oil companies tend to offer three types of card:

- personal account cards targeted primarily at private drivers;
- bonus cards available to all motorists; and
- fleet cards targeted at users that operate a number of petrol vehicles (e.g., commercial car fleets).

The Consultancy Team conducted an anonymous phone survey on 2 September 2005 to obtain details of the discounts currently available through the companies' loyalty schemes. The discounts outlined below are not an exhaustive list of the discounts offered by these companies, but rather a 'snapshot' of discount offerings on a particular date. In addition, companies may also offer straight pump price discounts to card holders that vary over time and by customer type, various promotions, including giveaways and lucky draws, and welcome gifts for new customers. Depending upon whether a motorist holds a fleet card, personal account card or bonus card, and the oil company concerned, a discount of anywhere up to 15% off the pump price appears to be potentially obtainable when purchasing petrol. There does not appear to be a significant difference between the discounts available via fleet cards and personal account cards.

Advantages offered to personal account card holders include a monthly credit facility for the purchase of unleaded petrol and the discounts outlined below.

Table 4: Personal Account Card Discounts

Type		Personal Account Card Discount Offered as at 2 September 2005		
<b>Shell</b>	Fuel Card	Standard & Super 98		
		1 – 75 litres/month	HK\$0.35/litre	
		76 – 300 litres/month	HK\$0.45/litre	
		301+ litres/month	HK\$0.60/litre	
<b>ExxonMobil</b>	DBS Visa	<u>Discount Tranches</u>		
			Standard 98	Super 98
		1 – 120 litres/month	HK\$0.40/litre	HK\$0.60/litre
		121 – 250 litres/month	HK\$0.50/litre	HK\$0.70/litre
		251+ litres/month	HK\$0.70/litre	HK\$0.90/litre
		<u>Points Scheme</u>		
		HK\$1 spent = 1 ‘Smiles’ point 1,500 points redeemable for a HK\$50 ExxonMobil voucher 2,800 points redeemable for a HK\$100 ExxonMobil voucher 7,500 points redeemable for a HK\$300 ExxonMobil voucher 5 Smiles points = 1 Asia mile (redeemable for air travel)		
<u>Extras</u>				
0.5% rebate on total monthly Visa bill <sup>38</sup> Up to 50% discount on car-wash and car-wax services 10,000 Smiles points or HK\$400 Wilson parking coupon awarded to new card holders				
<b>Chevron<sup>39</sup></b>	Fuel Card	HK\$1 spent = 1.3 points 3,500 points redeemable for a HK\$100 Chevron voucher 22,800 points redeemable for a HK\$800 Chevron voucher		
<b>CRC</b>	Fuel Card	10% discount per litre		
<b>Chinaoil</b>	Fuel Card	9.09% discount per litre		
<b>Sinopec</b>	Fuel Card	Standard 98		
		1 – 75 litres/month	HK\$0.45/litre	HK\$0.54/litre
		76 – 300 litres/month	HK\$0.57/litre	HK\$0.70/litre
		301+ litres/month	HK\$0.78/litre	HK\$0.91/litre
<b>Petrol Pump Prices (2 September 2005)</b>	Approx. HK\$13.00/litre (standard 98 RON) and HK\$13.80/litre (premium 98 RON)			

Bonus cards enable the user to enjoy broadly similar advantages to those offered by personal account cards when paying by some other means (e.g., cash or credit card).<sup>40</sup>

<sup>38</sup> Includes all monthly purchases – not just petrol purchases. It is unclear how the cost is shared between ExxonMobil and DBS, the issuing bank.

<sup>39</sup> Chevron also currently has an arrangement with HSBC whereby any customer paying with an HSBC credit card will be entitled to up to HK\$40 additional auto-fuel.

<sup>40</sup> Note that several of the discounts offered through personal account cards are not available through bonus cards, e.g., ExxonMobil and Chinaoil only offer their points redemption schemes.

Table 5: Bonus Card Discounts

<b>Bonus Card Discount Offered as at 2 September 2005</b>	
<b>Shell</b>	Identical to personal account card
<b>ExxonMobil</b>	Identical to personal account card 'Points Scheme'
<b>Chevron</b>	Identical to personal account card
<b>CRC</b>	HK\$1.20/litre
<b>Chinaoil</b>	HK\$1 spent = 1.1 points 11 points redeemable for HK\$1 of petrol purchases
<b>Sinopec</b>	Identical to personal account card

Advantages offered to fleet card holders include a monthly credit facility for the purchase of unleaded petrol, with a single account for all of a company's vehicles. Limited discounts are also offered by some retailers as outlined below.

Table 6: Fleet Account Card Discounts

<b>Fleet Account Card Discount Offered as at 2 September 2005</b>	
<b>Shell</b>	Negotiated on a case-by-case basis
<b>ExxonMobil</b>	Negotiated on a case-by-case basis
<b>Chevron</b>	Negotiated on a case-by-case basis
<b>CRC</b>	HK\$1.50/litre
<b>Chinaoil</b>	9.09% discount per litre
<b>Sinopec</b>	Identical to personal account card and bonus card

#### 4.7.2 Diesel

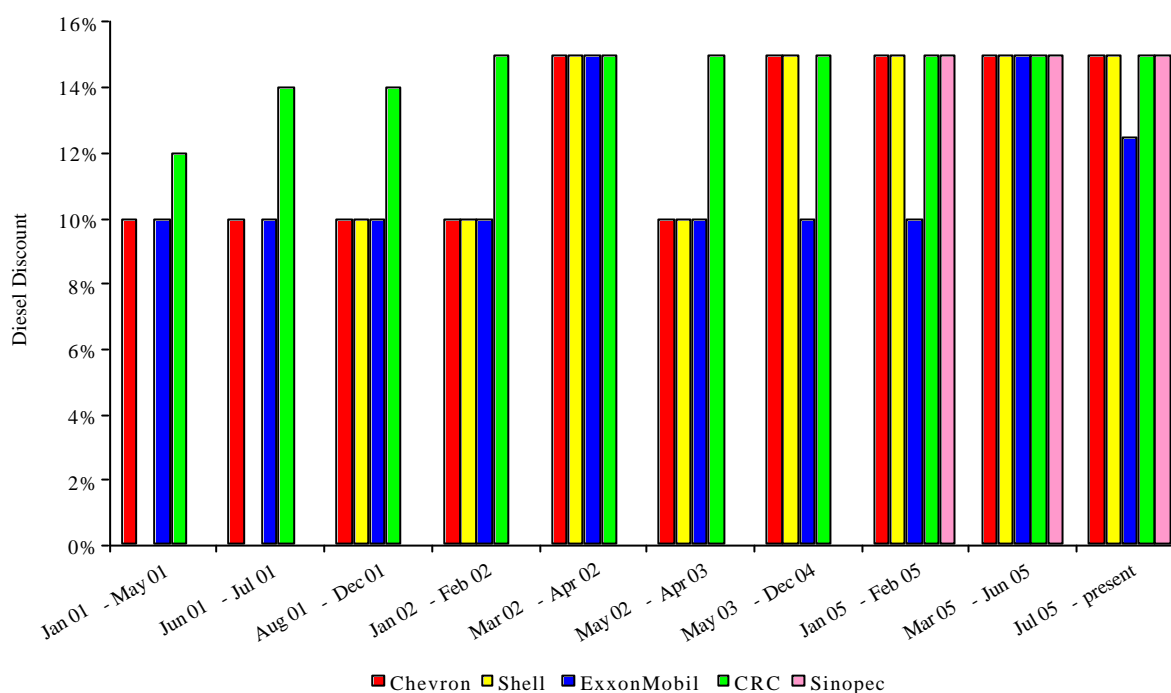
Discounting from diesel pump prices is also widespread. Diesel discounts continue to be generally straight from the pump price and are largely bespoke for each user.

As Chart 9 illustrates, since late 2001 a pump price discount of 10-15% has generally been available, regardless of PFS location.<sup>41</sup> Even larger discounts are available to large purchasers and for new customers. Accordingly, on average, diesel discounts probably exceed those depicted in Chart 9 below. Oil company data indicates that the typical diesel discount in 2004/05 was HK\$1.45/litre, which is equivalent to a 20% discount over that time period.

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<sup>41</sup> Officially some of these discounts are only available to loyalty card holders. However, in reality they are likely to be available to all customers. At least one oil company stated during our anonymous phone survey of 2 September 2005 that a 15% discount was available to all customers at all stations without the need to present any form of loyalty card.

Chart 9: Reported Diesel Discounts<sup>42</sup>



Source: Consumer Council

### 4.7.3 Consolidators

Consolidators are independent operators that seek to sign up or ‘consolidate’ a large group of motorists, then negotiate a volume discount with an oil company. The consolidator is then able to pass on less than 100% of that discount, making a margin on the difference. Consolidators’ customers were originally commercial drivers, but there is a growing trend to include private drivers. Oil companies’ use consolidators to manage their credit risk and outsource customer billing and support functions.<sup>43</sup> A number of industry participants indicated that significant discounts were potentially available through consolidators – discounts off the pump prices for petrol and diesel in the region of 10-15% were said to be commonplace.

<sup>42</sup> Oil companies periodically advise the Consumer Council of their diesel discounts. The Consumer Council carries out a random cross-check at randomly selected stations to verify the availability of these discounts. The discount series for ExxonMobil also captures the discounts offered by Feoso, Concord (at its joint venture station) and Esso when it was operating. Data for Chinaoil was unavailable, but we understand it offers similar discounts.

<sup>43</sup> Whilst the oil companies will still issue cards to the consolidator’s individual customers, the *consolidator* takes on the credit risk for those customers.



## 5. Structural Issues and Competition

This chapter looks at whether the features of the Hong Kong auto-fuel market outlined in chapter 4 could facilitate coordinated conduct, whether through collusion or implicit coordination, between the oil companies. As outlined in chapter 3, at this first stage we are only assessing whether there is a material risk of coordinated conduct in the Hong Kong auto-fuel market. We then investigate in chapters 6 and 7 whether such conduct is actually occurring and if it is, whether it is more likely to be the outcome of collusion, which is prohibited by competition law, or implicit coordination, which is not.

### 5.1 Seller Concentration

Concentrated markets facilitate collusion or implicit coordinated conduct because the fewer businesses interacting in a market and the larger those businesses are the easier it is for them to settle upon prices and monitor each other's activities.

Using the two standard measures of market concentration, the four-firm concentration ratio and the Herfindahl-Hirschman Index ('HHI'),<sup>44</sup> the Hong Kong retail auto-fuel market is highly concentrated. In 2004, the four-firm concentration ratio was near 1.0, since between them Shell, ExxonMobil, Chevron and CRC controlled close to 100% of the combined auto-fuel market.<sup>45</sup> The HHI for the Hong Kong auto-fuel market based on 2004 market shares would be 3,160, which the United States Department of Justice classifies as highly concentrated.<sup>46</sup>

### 5.2 Barriers to Entry

High barriers to entry facilitate collusion or implicit coordination because the harder it is to enter a market, the longer existing players can sustain higher prices. Any firm seeking to enter the Hong Kong retail auto-fuel market must acquire a network of PFS sites and must secure a supply of auto-fuel.

#### 5.2.1 Obtaining a Network of Retail Stations

A number of industry sources interviewed for this study indicated that the minimum efficient scale of operations requires a network of 20 to 30 PFS sites in good locations. Oil companies with fewer PFS sites will struggle to attract custom from lucrative commercial fleet customers, who will tend to favour oil companies with larger PFS networks. The Consumer Council cited the inability of BP to secure a chain of PFS sites as a key factor in its exit in 1992.<sup>47</sup>

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<sup>44</sup> The concentration ratio measures the combined market share of the largest firms in a market. For example, the 'four firm' concentration ratio is simply the sum of the market shares of the four largest firms in the market. The HHI is calculated by summing the squares of the individual market shares of all the participants.

<sup>45</sup> Since Sinopec and Chinaoil currently only have a very small market share, the 2005 ratio would not differ significantly.

<sup>46</sup> Horizontal Merger Guideline: [http://www.usdoj.gov/atr/public/guidelines/horiz\\_book/15.html](http://www.usdoj.gov/atr/public/guidelines/horiz_book/15.html).

<sup>47</sup> Consumer Council Report (1999), p61.

The new tendering arrangements for PFS sites help entrants seeking to purchase multiple sites. However, some interviewees thought that the cost of obtaining new PFS sites is now too high, precluding future entry. This conclusion is likely to be premature, particularly if the sums paid for these initial sites form part of an entry strategy, in which case it may be reasonable to expect prices in future tenders to fall.

### **5.2.2 Securing a Supply of Auto-fuel**

A prospective retailer has three potential supply options:

- (a) import refined auto-fuel to store at its own terminal storage facility;
- (b) import refined auto-fuel to store at a terminal storage facility rented from one of the other oil companies; and
- (c) purchase imported auto-fuel from one of the other oil companies.

Building a terminal storage facility is unlikely to be a realistic option given the difficulties of securing a suitable waterfront site and obtaining the necessary planning and environmental consents. While it may be easier to locate a new terminal site in Mainland China or use existing terminal facilities there, Mainland Chinese regulations currently prevent the importation of refined auto-fuels into Mainland China for storage before re-shipment to Hong Kong. Even if Mainland Chinese oil companies, such as Chinaoil or Sinopec, were able to re-export, any cross-border delivery option, whether by barge or by tanker trucks, would require sufficient scale in distribution to be economically feasible.

The Government has made a number of public statements to the effect that new entrants should attempt to negotiate access to the major oil companies' existing terminal storage capacity.<sup>48</sup> However, the oil companies are under no obligation to provide access. The extra revenue potentially available from renting spare capacity may be outweighed by the detriment in assisting a competitor. One company also indicated that it did not currently have spare capacity once import cycles were accounted for.

The third option of purchasing imported auto-fuel from the other major oil companies is how the non-vertically oil companies currently obtain supply. The oil companies, again, are under no obligation to supply wholesale auto-fuel and those that do will seek a margin on such sales.

In conclusion, the market is characterised by high barriers to entry which can better facilitate collusion or implicit coordination.

## **5.3 Market Transparency**

The more market information that is publicly available, the easier it is for businesses to monitor rivals' sales and prices, and thus sustain prices above competitive levels. Hong Kong pump prices for petrol and diesel are highly transparent. Whilst many PFS sites do not display their pump prices on pricing boards, it is common practice for companies to issue press releases announcing all pump price changes in advance.

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<sup>48</sup> See for example: Legislative Council, Official Record of Proceedings, 8 May 2002, p5944.

However, the prevalence of discounting in the Hong Kong market means that headline pump prices, whilst transparent, do not reflect the prevailing market prices for auto-fuel. The details of the oil companies' various discount schemes are not particularly transparent and discounts with large commercial fleet owners are often individually negotiated. This increases the scope for individual firms to undertake 'hidden' price cuts and thereby limits the ability of oil companies to engage in collusion or implicit coordination.

#### **5.4 Credibility of Retaliation**

Firms contemplating lowering prices need to be faced with the credible threat of prompt retaliation for collusion or implicit coordinated conduct to be sustainable. For example, firms with excess storage capacity for their product have the ability to make explicit or implicit threats to flood the market with large quantities of their product in order to punish competitors that lower prices.

Although there may be limited surplus storage capacity currently, once the new PAFF jet fuel facility is established, there is likely to be some surplus capacity. Market volumes for auto-fuel are also declining. Thus, whilst it is unclear whether a credible threat of retaliation currently exists, it is possible there will be such a threat in the *future*, which would increase the scope for collusion or implicit coordinated conduct.

#### **5.5 Price Inelastic Demand**

Price inelastic market demand is generally thought to make collusion or implicit coordinated conduct more profitable since customers reduce their demand by relatively little in response to a given price increase. The demand for petrol and diesel respectively is likely to be price inelastic since there are no close substitutes. Indeed, the lack of close substitutes coupled with the necessity of the product is the principle cause of why, internationally, auto-fuel markets receive the extensive amount of attention they do.<sup>49</sup>

#### **5.6 Limited Product Differentiation where Competition is Mainly on Price**

Collusion or implicit coordination is generally considered to be easier when firms supply a homogeneous product, since, in the absence of significant product differentiation, it becomes easier for firms to settle upon price.

The oil companies do endeavour to promote some degree of product differentiation in the Hong Kong market on the basis of fuel additives. The location of a PFS site may also be an important differentiating factor, since, other things being equal, a consumer will utilise the closest PFS site when in need of refuelling.

However, within the same vicinity, petrol and diesel are each effectively homogeneous products and so price will generally be the most important determinant of choice of supplier. This conclusion is supported by the comment of one large retailer that when it lagged behind

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<sup>49</sup> We do not consider LPG to be a close substitute for diesel. If LPG were a close substitute it seems unlikely that incentive mechanisms adopted by the Government to encourage taxis and minibuses to switch to LPG would be necessary.

its major competitors in decreasing its price, it observed a significant decrease in demand.

## **5.7 Predictable Demand and Market Share**

Collusion or implicit coordination is generally thought to be easier if demand is predictable. Any market share gain by a firm that lowers its price is likely to be quickly detected by rivals as they lose market share.

This situation applies in Hong Kong. In recent years, the demand for petrol and diesel has been steadily declining at the expense of increased LPG sales. Nonetheless, the market shares of the major oil companies have remained relatively constant.<sup>50</sup>

## **5.8 Size and Cost Homogeneity with an Absence of ‘Maverick’ Competitors**

Size and cost symmetries between firms better enable collusion or implicit coordination because firms of different sizes with different costs structures face very different pricing incentives. Firms which have a lower cost base than their competitors will have an incentive to offer lower prices than their competitors. Conversely, high cost firms will find it difficult to invoke a credible retaliation threat to low cost firms since lowering prices may hurt their own ability to generate positive accounting profits.

The absence of ‘maverick’ competitors is also considered an important factor in facilitating collusion or implicit coordination.<sup>51</sup> Mavericks commonly engage in aggressive pricing strategies and avoid following price leadership and other market stabilising initiatives by competitors. Maverick firms tend to exercise an influence on competition that is disproportionate to their size, and therefore need not be large to be vigorous and effective.

All firms in the Hong Kong auto-fuel market appear to have broadly similar cost structures – all firms either import auto-fuel from Singapore, or purchase auto-fuel imported from Singapore at wholesale.<sup>52</sup> One consequence of this relatively high degree of cost homogeneity is that the prospect of a maverick player emerging is limited. If a firm enjoys a cost advantage, or innovative business strategy, it may be able to consistently offer lower auto-fuel prices.

Neither CRC nor the new entrants could properly be termed maverick competitors since no firm exercises an influence on competition that is disproportionate to its size. Their ability to act as mavericks in the market may be constrained by a number of factors, such as their limited geographic presence, consumer perceptions about the quality of their auto-fuel and the similar or higher cost profile which they have compared to the oil majors. This may change if they increase the scale of their operations with the forthcoming PFS tenders.

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<sup>50</sup> The entry of Sinopec and Chinaoil has had little impact in terms of the total market size, or the respective market shares.

<sup>51</sup> See for instance: Canadian Competition Bureau (1991), Merger Enforcement Guidelines, section 4.8.

<sup>52</sup> Non-vertically integrated firms, including Sinopec and Chinaoil, may have slightly higher product costs since they must purchase auto-fuel at wholesale.

Firms with an innovative business model also may be able to offer lower prices. The entry of supermarkets and department stores into the auto-fuel market has had a significant impact on competition in overseas markets, such as the United States, Australia, the United Kingdom and France. It is unlikely that Hong Kong retailers such as Park' N Shop and Wellcome could have a similar impact since there are fundamental problems with using supermarket sites for PFS use. The size and configuration of PFS sites and the current lease restrictions limit the number of uses to which a new entrant may put a PFS site. Additionally, most supermarkets are located in the basements of buildings, where PFS sites cannot be built. In addition, supermarket leases tend to be only for six years, which is insufficient time to recoup the necessary capital investment in a PFS site.

## **5.9 Low Buyer Concentration with Small Frequent Sales**

Collusion or implicit coordination is easier in industries characterised by frequent, small sales. Small, regular sales provide a relatively small profit incentive for a firm to lower its prices for any particular sale. Customers with small volumes do not have sufficient countervailing power to resist higher prices resulting from coordinated conduct.

The majority of Hong Kong motorists make small, frequent auto-fuel purchases from PFS sites using fuel loyalty and credit cards. Through the use of loyalty cards, commercial diesel fleet customers may have some measure of countervailing power. Whilst individual purchases at PFS sites by individual fleet drivers may be modest, once those individual purchases are aggregated across an entire fleet, the total volume purchased over a period of time may be significant. The same cannot be said for petrol customers, since the aggregated purchases of individual customers are still small in comparison to fleet operators. There seems little doubt that KMB and First Bus/City Bus each possess significant countervailing power. These companies periodically tender their entire auto-fuel supply and report keen competition for these contracts, suggesting collusion has not occurred. Whilst companies may attempt to coordinate bids in some fashion beforehand, since it is essentially a 'one shot game' there would be a substantial incentive to subsequently deviate from any such agreement or understanding in order to secure a lucrative contract.

## **5.10 Vertical Integration**

A high level of vertical integration by upstream firms into an associated downstream retail market may help facilitate collusion or implicit coordination throughout the entire supply chain. The presence of a vibrant wholesale market is also often cited in United States merger determinations as a critical factor constraining sustained collusion or implicit coordination.

The Hong Kong market is characterised by a substantial degree of vertical integration by international standards. The domestic wholesale market is limited to sales to Concord, Feoso, Sinopec and Chinaoil, which collectively account for a small share of the market. While dealers may receive auto-fuel at a wholesale price, they do not have the freedom to change suppliers and in practice, do not set final prices. Thus, wholesale market discipline is weak in the Hong Kong retail auto-fuel market.

Notwithstanding the relative lack of transparency surrounding final retail discounted prices in Hong Kong, these prices may nonetheless be more visible – and thus potentially easier to monitor – than intermediate prices.

In addition, there is cooperation between the integrated oil companies at the upstream level. We understand that oil companies do share each others' terminal storage space and enter into borrow and loan agreements. This increases the scope for information sharing that can be used to enable collusion or implicit coordination downstream.

### 5.11 Conclusion

No simple formula exists for determining the number of factors that must be present before collusion or implicit coordination is feasible or for determining the relative importance of each factor. Nonetheless, our assessment, summarised in Table 7 below, indicates that enough of the factors generally thought to facilitate collusion or implicit coordination are present in the Hong Kong auto-fuel market for there to be a material risk of coordinated conduct occurring.

Table 7: Summary of Assessment of Hong Kong Market Structure

Market Structure Factor		
High Seller Concentration	✓	
High Barriers to Entry	✓	
Market Transparency	✗	
Credible Threat of Swift Retaliation	✓	
Price Inelastic Demand	✓	
Limited Product Differentiation	✓	
Competition Mainly on Price	✓	
Stable Demand and Market Shares	✓	
Size and Cost Homogeneity	✓	
	Petrol	Diesel
Low Buyer Concentration with Frequent Sales	✓	✗
High Degree of Vertical Integration	✓	

## 6. Conduct of Oil Companies in the Hong Kong Market

Whilst the previous chapter concluded that there are sufficient factors in the Hong Kong retail market structure to facilitate both collusion and implicit coordination, it is important to recognise that vigorous competition can still occur in such a market. This chapter examines the actual *conduct* of oil companies to determine whether price coordination is actually occurring in the Hong Kong auto-fuel market. As explained in chapter 3, if there is no actual price coordination, neither implicit coordination nor collusion is likely to be occurring. If there is actual price coordination, we need to consider whether collusion or implicit coordination is the more likely explanation.

We have built a model to estimate the retail margins being earned by Hong Kong oil companies so as to benchmark those margins against those being earned by comparable retailers in other markets around the world. The margin analysis serves as a useful high level filter.<sup>53</sup> If Hong Kong's margins are at or below margins in other markets which have been found to be competitive, it is unlikely that collusive behaviour is occurring in the Hong Kong auto-fuel market. If margins are comparatively high, then further investigation of the oil companies' actual conduct is warranted.

We then examine whether the widely held perceptions about oil companies' pricing conduct in the Hong Kong market are accurate: if so, whether this conduct is similar to that which would be expected in competitive markets, and, if not, whether it may be explained by Hong Kong-specific factors or by collusion or implicit coordination.

### 6.1 Margin Analysis

Our model estimates the margins being earned in the Hong Kong auto-fuel market by a typical retailer.<sup>54</sup> The assumptions underlying this model are set out in Annexure 10.2.

#### 6.1.1 Hong Kong Gross Margin

Table 8 details the gross margin calculated for the year to 30 June 2005.

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<sup>53</sup> As discussed in section 7.2.1, margins are not regarded by competition legal authorities as a strong indicator by themselves that collusion rather than implicit coordination is occurring.

<sup>54</sup> Given that in the majority of cases the oil company is responsible for setting the final retail price (either directly or because the dealer usually accepts the recommended prices), we consider an analysis of margins across the entire supply chain is more indicative of the true level of profitability in the sector than an analysis focused solely on retail margins. Moreover, given that for many companies there is no separate 'wholesale price' for sales to PFS sites, it would not be possible to undertake a margin calculation of retail activities only.

Table 8: Hong Kong Gross Margin Analysis

	<b>Regular Petrol</b>	<b>ULSD Diesel</b>
	HK\$/litre	HK\$/litre
	(year to June 2005)	(year to June 2005)
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
<b>Gross margin</b>	<b>2.07</b>	<b>1.81</b>

- Pump prices are prices before discounts collected by the Consumer Council;
- Discounts are typical of the average discounts offered by the oil companies, based on oil company data;
- Excise taxes are from the Customs and Excise Department; and
- Product costs are based on import statistics published by the Census and Statistics Department.

The Consumer Council Report (1999) estimated a gross margin of HK\$2.40/litre for both petrol and diesel.<sup>55</sup> Our estimates indicate that since 1999:

- the gross margin has fallen by HK\$0.33 for petrol and HK\$0.59 for diesel<sup>56</sup> (14% and 25% respectively);
- there has been an increase in both product cost and pump price (before discounts), and a decrease in the excise applying to diesel; and
- there has also been an increase in the prevalence of discounts.<sup>57</sup>

<sup>55</sup> Consumer Council Report (1999), p39.

<sup>56</sup> Diesel consumption in 1999 consisted of both regular motor diesel and ULSD. Margins reported by the Consumer Council are averaged across these products and do not represent the margin on ULSD only.

<sup>57</sup> The gross margin estimate in the Consumer Council Report (1999) was based on discounts of 12% for petrol and 15% for diesel, with a 50% assumed discount coverage. Oil company data indicates that the take-up of discounts is close to 100% for diesel and more than 80% for petrol.



## 6.1.2 Hong Kong Net Margin

Table 9 below estimates the net margin on sales of petrol and diesel.

Table 9: Hong Kong Net Margin Analysis (year to 30 June 2005)

	Petrol HK\$/litre	Diesel HK\$/litre
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
<b>Net margin</b>	<b>0.29</b>	<b>0.02</b>
As % of ex-duty pump price	4.8%	0.3%
As % of ex-duty discounted price	5.5%	0.5%

As they are calculated before the allocation of company overheads and profits tax, the net margins, although an indication of relative profitability, *are not a direct calculation of profits*.<sup>58</sup>

Our cost estimates have been established on the following basis:<sup>59</sup>

- We have estimated current land costs based on the results of the tenders since the new tendering arrangements were introduced, i.e., the sale of the last 18 sites in four tender rounds since 2003, at an average real price of HK\$78.64 million. These costs have been expressed as an annuity over 21 years, using an estimate of the risk free interest rate;<sup>60</sup>
- Average station throughput is assumed to be 5.615 million litres per year (54% diesel: 46% petrol) based on import data provided by the Census and Statistics Department;<sup>61</sup>

<sup>58</sup> We have not attempted to express the net margin as a return on assets employed. We did not receive data on asset values from a sufficient number of the oil companies to use publicly. Analysis of returns on capital employed are less relevant for retailing activities. Comparisons between companies can be problematic where assets are allocated differently by them between business functions (e.g. the oil companies may allocate assets differently between LPG and petrol/diesel activities).

<sup>59</sup> Information provided by non-confidential sources has been verified against oil company data where permitted by confidentiality arrangements: see section 2.2.

<sup>60</sup> This approach to valuing land means that the margins calculated reflect economic (rather than accounting) margins. The accounting margins may be higher for a number of reasons: the actual land costs may be lower than used in our model because our model uses the average of recent PFS tender results rather than historic land values; and our annualised land cost already includes a return of 4.3% (i.e. the estimated risk free rate in October 2005).

<sup>61</sup> This has been adjusted to reflect estimated diesel sales, using non-confidential data from industry sources. This throughput estimate does not include sales of LPG.

- Operating costs include labour, utilities, maintenance and insurance, and are based on estimates provided by non-confidential industry sources;<sup>62</sup>
- Government rent and rates are based on oil company data;
- Estimates of credit card commission costs are based on oil company data;
- Construction costs for a typical PFS station are assumed to be HK\$17.3 million, based on oil company data. These have been allocated over the life of a lease using straight-line depreciation;
- Terminal storage costs are based on oil company data; and
- Distribution costs are based on information from non-confidential industry sources.

Table 10 provides a detailed breakdown of the assumptions underlying our estimate of annual operating costs.

Table 10: Annual Operating Costs for a Typical PFS Site (HK\$) 2005

<b>Operating Costs</b>	<b>HK\$</b>
Labour <sup>63</sup>	1,476,000
Maintenance	72,000
Utilities	144,000
Insurance	24,000
Materials and supplies	48,000
Agent's fee	240,000
Total	2,004,000
<i>Throughput (litres)</i>	<i>5,614,689</i>
<b>Operating cost/litre</b>	<b>0.36</b>

We have calculated the current cost of land from the outcome of the last four tender rounds (of 18 PFS sites). Taking an average tender value over a range of PFS sites provides a better indication of typical land costs than focussing solely on the last tender, since tender outcomes will themselves depend on the specific details of the PFS sites being sold, such as location and anticipated throughput. Current costs represent the costs a new entrant would face in the market, and so the resulting net margin therefore represents the average level of profitability of the marginal player in the market. Existing players in the market who are not yet significantly exposed to current land prices could be earning higher net margins than those reported.

<sup>62</sup> The reasonableness of our overall operating cost estimate has been confirmed by oil company data.

<sup>63</sup> Labour cost estimates for PFS sites have been provided by a non-confidential industry source, and are based on a view of typical current staffing levels and wages. Where PFS sites are run by agents rather than directly by the oil company, these labour costs will be met out of the agent's commission/fee. Our net margin calculation separately identifies the straight commission paid to the agent (net of costs) and the various costs paid by the agent, given that different oil companies adopt different cost sharing arrangements with agents.

Many of the other costs to be met from the gross margin, have not varied significantly from those reported in the Consumer Council Report (1999). The exception is construction costs, which are assumed to be HK\$17.3 million, rather than the HK\$10 million estimate used by the Consumer Council. The increase in construction costs in part reflects the stricter environmental controls that apply to PFS sites. We have estimated a lower level of PFS throughput than that used by the Consumer Council, which has the effect of increasing the per litre cost of the fixed cost categories.

Our calculation of the net margin is based on the fixed costs of PFS retail sites being recouped solely from auto-fuel sales, with no costs allocated to non-fuel sales. Non-fuel sales are not a significant factor in Hong Kong. We estimate that the net margin earned on non-fuel sales is just HK\$0.04/litre.

### 6.1.3 International Margin Comparison

This section compares these margins with those being earned by comparable retailers in overseas markets. We compared separate margins for petrol and for diesel, allocating the fixed costs of the PFS site between these products. However, as fixed costs will be recovered across all revenue streams, a more robust indicator of comparative margins is the combined margin across petrol, diesel and non-fuel items, which we have also assessed.

Data was limited for many markets and we had to make a number of assumptions, which are documented in Annexure 10.2. It is also important to note that differences in market characteristics (such as the extent of car ownership, differences in average incomes and availability of effective public transport) will have an important impact on market outcomes.

Ideally, our comparison of margins between cities would be based on net margins. However, detailed data on many of the cost categories needed for a net margin analysis was simply not available.

As a result, our comparison is based on a calculation of the gross margin in each city net of land costs. As discussed in the previous section, land costs are the highest cost item included in the Hong Kong net margin analysis. Terminal storage costs have also been taken into account within the product cost estimates, either directly or through the use of wholesale prices for product costs. Our comparison, therefore, goes further than a straight gross margin comparison.

The non-inclusion of other costs, such as labour and construction costs, in the comparative margin analysis obviously does place qualifications on the conclusions that can be drawn from the analysis. We have attempted to quantify the extent to which these costs differ between Hong Kong and other markets.<sup>64</sup> While this analysis is incomplete because of data limitations, it does provide an indication of the likely extent of cost differences in comparison with the calculated gross margins (net of land costs).

A further qualification on our analysis is that it is based on monthly estimates, as annual information was not available on a consistent basis for all cities. Some movement in the comparative margins can be expected the longer the time period taken. It also should be

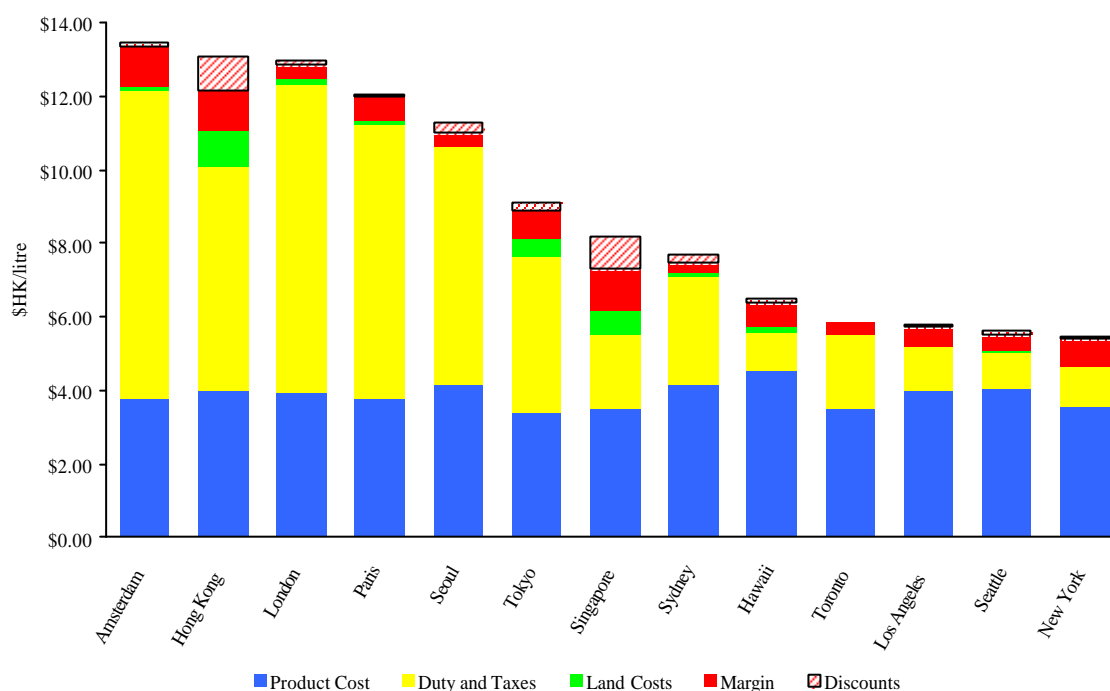
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<sup>64</sup> The same additional costs must be met in all cases, and so the larger (or smaller) the gross margin net of land costs in one city, the more (or less) room there would appear to be to meet these costs.

noted that the Hong Kong gross margin net of land costs estimated as part of this international comparison is not directly comparable with that calculated in the preceding section because of the different timeframes over which the estimates have been calculated.

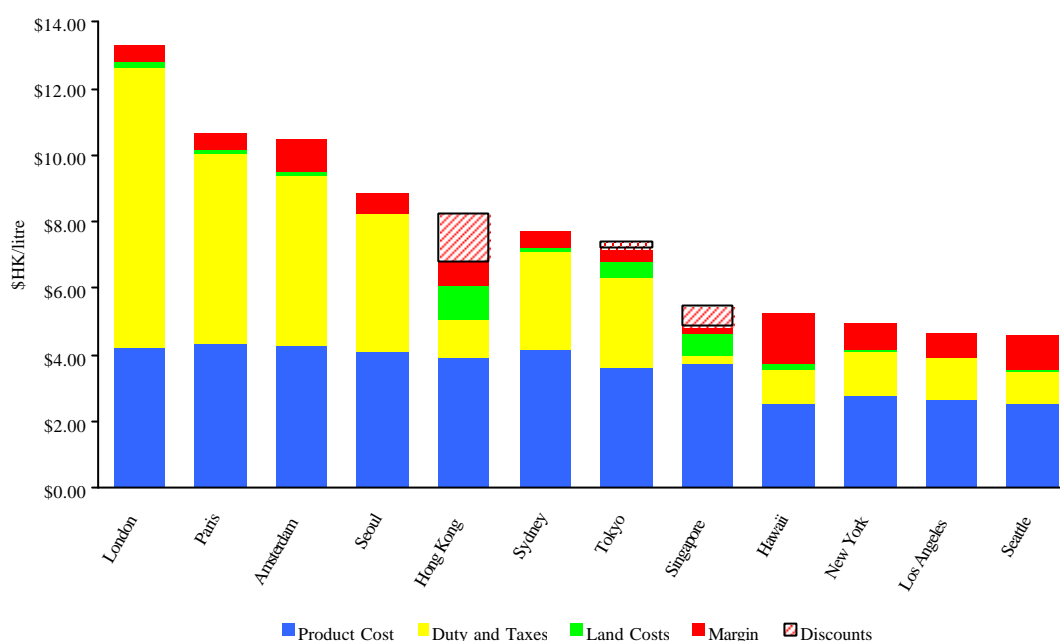
Charts 10 and 11 set out a breakdown of the various elements that make up the pump price of petrol and diesel in Hong Kong, including gross margins, against a range of cities. Unless otherwise indicated, the comparison has been estimated as at October 2005.

Chart 10: 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.

Chart 11: Diesel Pump Price Component Breakdown: International Comparison, October 2005 (HK\$/litre)



Notes: (i) Comprehensive public information on diesel retail and wholesale prices was 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.

We are able to make the following observations from this international comparison of margins:

- Prices in Hong Kong for petrol (both pump prices and retail discounted prices) are high by international standards, although on par with those in Europe. Diesel pump prices fall within the mid-range, above pump prices in the United States, Singapore, Tokyo and Sydney, but below those in Europe and Seoul.<sup>65</sup>

Box 1. Hong Kong and Singapore Market: Snapshot Comparison				
<b>Structural Features</b>				
<b>Similarities</b>		<b>Differences</b>		
<ul style="list-style-type: none"> <li>Both markets highly concentrated</li> <li>Similar land tendering arrangements</li> <li>Similar buyer characteristics</li> </ul>		<ul style="list-style-type: none"> <li>Singapore has refining capacity</li> <li>The Singaporean Government owns an oil company</li> </ul>		
<b>Margins</b>				
	<b>Hong Kong</b>		<b>Singapore</b>	
	Petrol	Diesel	Petrol	Diesel
Gross margin after land costs (HK\$/litre)	\$1.07	\$0.74	\$1.11	\$0.20
% of ex-duty pump price	15.2%	10.3%	18.1%	3.9%
% of ex-duty retail discounted price	17.5%	12.9%	21.2%	4.4%
<b>Pricing Conduct</b>				
<b>Similarities</b>		<b>Differences</b>		
<ul style="list-style-type: none"> <li>Pump prices are the same across companies</li> <li>Prices change at the same time</li> <li>Limited geographic price variation</li> <li>Discounts prevalent and significant                             <ul style="list-style-type: none"> <li>loyalty card schemes common</li> <li>discounts easily obtained</li> </ul> </li> </ul>		<ul style="list-style-type: none"> <li>Prices vary more frequently in Singapore (eg. ExxonMobil changed its petrol discount on four occasions in June 2005)</li> <li>95 and 92 RON offered in Singapore in addition to 98 RON</li> <li>Non-fuel margin higher in Singapore</li> </ul>		

<sup>65</sup> This is subject to the limited availability of information about diesel discounts in many countries.

- Discounts for petrol appear to be most significant in Asia, including Hong Kong. Although discounts are available in Europe, the United States and Sydney, they are much smaller than the Hong Kong discounts.
- The gross margin for retail petrol sales in Hong Kong, after land costs, is in the order of HK\$1.07 per litre. This is significantly higher than the gross margins in other cities surveyed, with the exception of Singapore and Amsterdam, where we have estimated gross margins of HK\$1.11 and HK\$1.10 per litre respectively.
- For diesel sales, gross margins after land costs in Hong Kong are estimated at HK\$0.74 per litre. However, the lack of information about diesel discounts in other markets makes a comparison of the diesel margins difficult. The discounted diesel price, given the ubiquity of discounting, represents the ‘real’ price in Hong Kong, but the same may not apply in other markets, at least for diesel supplied through PFS sites. Diesel discounts for commercial customers appear to be available in the majority of our surveyed cities, although comprehensive information on relative size and uptake is not publicly available since discounts are typically individually negotiated and confidential. However, the limited available evidence suggests that the diesel discounts tend to be lower than in Hong Kong. In the United Kingdom, it appears that discounts of up to 3 pence or HK\$0.41 per litre (equivalent to 3% of the pump price) are sometimes available, although it is unclear how widespread such discounts are.<sup>66</sup> We have no information on the relative size of diesel discounts for the other European cities or in the United States.
- The Hong Kong gross margin after land costs for diesel is substantially higher than the gross margin after land costs for the two cities for which we do have discount data; in Singapore, the gross margin after land costs is HK\$0.20 per litre and in Tokyo, the gross margin after land costs is HK\$0.38 per litre, compared to HK\$0.74 per litre in Hong Kong. In the absence of diesel discount data for other markets, the gross margins in Chart 11 will be overstated compared to Hong Kong’s gross margin, but as discounts in Asia tend to be substantially higher than in other markets, we do not expect the margin differential between Hong Kong and these other markets to be as great as the comparison with Singapore and Tokyo suggests. Of the markets in Chart 11 with gross margins after land above Hong Kong’s, gross margins after land in Seattle, Amsterdam and Hawaii would likely remain above Hong Kong’s even if significant diesel discounts were available, while gross margin after land in New York and Los Angeles would fall below Hong Kong’s if modest diesel discounts were available.
- Accordingly, subject to these major limitations on diesel data, our assessment is that the gross margins after land for diesel in Hong Kong are, comparatively, on the high side, but not an outlier.

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<sup>66</sup> <http://www.roadstarservices.co.uk>

- There is a large variation in the product costs shown in the above charts. In general, petrol product costs in the United States are higher than those in the Asia-Pacific region, principally because of recent higher prices in United States wholesale markets.<sup>67</sup> While octane ratings may nominally indicate that Hong Kong should have the highest product costs, location and environmental standards for fuel appear to play just as large a role in determining the final cost of refined auto-fuels.
- Land costs form an important component of costs in Hong Kong, Singapore and, to a lesser extent, Tokyo. Where we have been able to estimate land costs in other markets surveyed, they do not appear to be so important.

The sale of non-fuel products and services is a much more important contributor to the profitability of a retail site in most other cities compared to Hong Kong. A typical Hong Kong auto-fuel station makes an annual profit of HK\$240,000 on non-fuel items,<sup>68</sup> adding HK\$0.04 per litre to gross profit on fuels. In comparison, non-fuel margins in the United States are around HK\$0.22 per litre and Singapore, Sydney, London and Amsterdam have non-fuel margins of around HK\$0.30 per litre. Seoul was the only city surveyed where non-fuel income was found to be lower than in Hong Kong.

The data limitations on diesel also reinforce the value of a comparison of the combined margins on petrol, diesel and non-fuel. As diesel forms a much smaller proportion of overall auto-fuel sales through PFS sites than petrol in most of the markets where we could not find data on diesel discounts, the lack of comprehensive data on diesel discount has a less distorting effect on the comparison of combined margins than the comparison of the individual margin for diesel.

Chart 12 shows the average gross fuel (petrol and diesel combined) margin after land costs<sup>69</sup> plus non-fuel margin across the cities surveyed. It is relevant to understand the combined fuel/non-fuel margins because many of the costs of a PFS are fixed and the proportion of fixed costs which must be recovered from fuel should logically fall as non-fuel revenues increase.

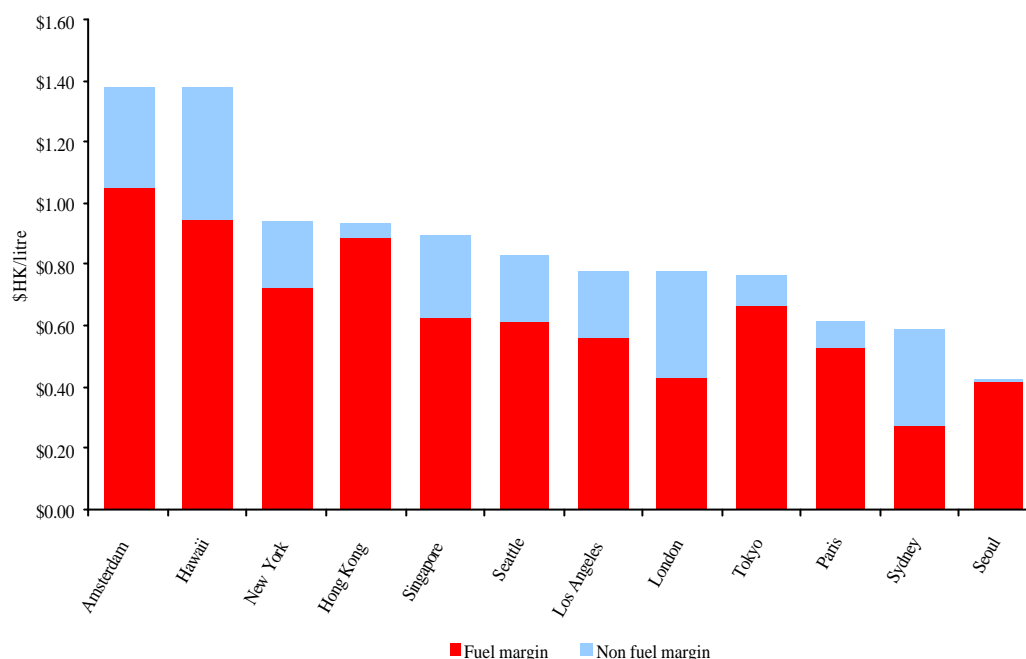
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<sup>67</sup> Hawaii has the highest product cost, which is explained by its isolation from crude oil sources, and the lack of scale of its two refineries.

<sup>68</sup> Based on non-confidential industry sources. The reasonableness of this per-litre estimate has been confirmed by oil company data.

<sup>69</sup> Based on the relative proportions of petrol and diesel sales in each city.

Chart 12: Combined Gross Margin after Land Costs across Fuel (Petrol and Diesel) and Non-Fuel Revenue, October 2005



The combined fuel/non-fuel margins after land costs in Hong Kong are at the upper end of the mid-range of combined margins internationally, and significantly below the combined margins in Amsterdam and Hawaii.

As to whether there are major differences between Hong Kong and the other markets for the most important remaining costs:

- staffing levels are generally higher in Hong Kong, which is likely due to the greater service demands of Hong Kong motorists,<sup>70</sup> but hourly wages are lower in the United States (and in most other markets). Our non-confidential estimates of labour costs in Hong Kong are approximately HK\$0.09 per litre more than those in the United States, based on Hong Kong levels of throughput;
- construction costs in Hong Kong are approximately HK\$17 million for a new station, while United States construction costs are HK\$0.06-0.09 per litre lower than in Hong Kong; and
- credit card commission costs in Hong Kong of about HK\$0.05 per litre appear to be less than those in the United States by around HK\$0.04 per litre.

In total, higher operating costs in Hong Kong account for HK\$0.11-0.14 per litre of the difference in the estimated margins for the United States and Hong Kong. Taking this difference into account, together with the higher level of non-fuel income in the United States,

<sup>70</sup> Due to small size of Hong Kong PFS sites, most auto-fuel sales are transacted with the driver remaining in his or her vehicle.



the total fuel and non-fuel margins in Hong Kong are on a comparable level to margins in Seattle, New York and Los Angeles.<sup>71</sup>

#### 6.1.4 Conclusions on Margin Analysis

Our assessment of the likely margins being earned by the oil companies in the Hong Kong market can be summarised as follows:

- the gross margin for petrol (regular 98 RON) is estimated to be **HK\$2.07/litre** and for diesel to be **HK\$1.81/litre**. The net margin before profits tax and overheads earned on petrol sales is estimated to be **HK\$0.29/litre**, whilst a lower margin of **HK\$0.02/litre** is estimated for diesel sales.
- Hong Kong gross margins (after land) are high for petrol compared to other surveyed markets (taking discounts into account).
- While the picture for diesel is less clear due to data limitations, our assessment is that the Hong Kong gross margin for diesel is also on the high side.
- We do not have enough information to know whether the comparative ranking of Hong Kong's gross margin for diesel is any better than the comparative ranking of Hong Kong's gross margin for petrol. However, our separate analysis of Hong Kong net margins suggests that competition is more intensive for diesel than for petrol.
- In any event, the more robust indicator of comparative margins is likely to be the combined margin earned over petrol, diesel and non-fuel items. Hong Kong's combined gross margin across fuel and non-fuel revenue is at the upper end of the mid-range of combined margins internationally, mainly because there is a much lower level of non-fuel revenue available to contribute to the recovery of the fixed costs of the PFS than in most other markets. That is, the comparative ranking of the Hong Kong market improves if margins are viewed on a combined basis than if petrol and diesel gross margins are viewed in isolation.
- Hong Kong-specific factors go some way towards explaining Hong Kong's higher gross margins. Once Hong Kong's higher overall operating costs are taken into account, Hong Kong's combined gross margin after land falls to be broadly in line with combined margins in the United States.
- Competition has intensified in the Hong Kong auto-fuel market as Hong Kong's gross and net margins have fallen since the Consumer Council Report (1999).
- However, even when the Hong Kong-specific factors and the decline in margins is taken into account, the oil companies appear to be earning margins in the Hong Kong auto-fuel market which range across the upper half of margins in our surveyed markets (with the ranking varying depending on whether it is the margin for petrol, diesel or combined fuel and non-fuel).

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<sup>71</sup> Although the United States margins we have calculated do not include discounts for diesel, the relative proportion of diesel sales at retail outlets in the United States cities surveyed is between 12-30%. As a result, although margins for the United States are likely to be overestimated, the overall impact on relative profitability may be limited, and is unlikely to change the conclusion above.

What our analysis of Hong Kong margins tends to show is that:

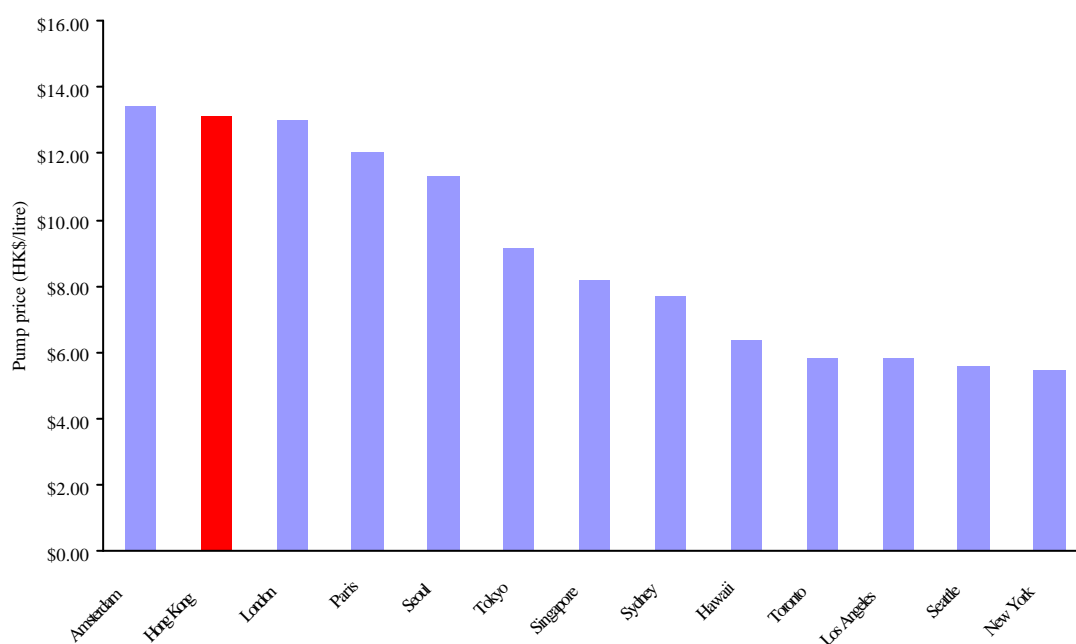
- price competition is not as intensive in the Hong Kong market as in some other markets;
- the presence of margins at this level in the Hong Kong market does warrant further investigation of their likely cause; and
- while the possibility of collusive behaviour cannot be dismissed outright, the margins in Hong Kong are not so high as to give rise to strong suspicions of collusive behaviour.

## 6.2 Price Setting and Adjustment Practices

### 6.2.1 Perception 1: Prices are Higher than Elsewhere

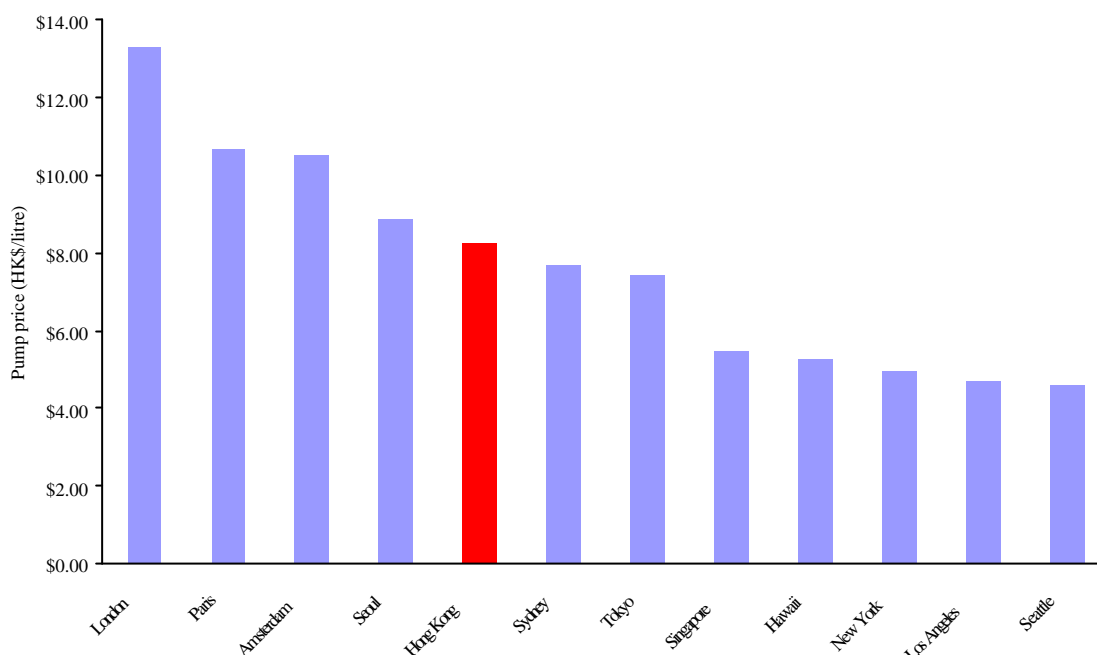
Interviews conducted by the Consultancy Team revealed a widely held perception that auto-fuel prices in Hong Kong are amongst the highest in the world. As Charts 13 and 14 illustrate, undiscounted Hong Kong petrol pump prices (including tax) are high compared with other metropolitan cities throughout the world, although Hong Kong diesel pump prices (including tax) appear to be lower than pump prices in some European cities and in Seoul.

Chart 13: Petrol Pump Prices: Hong Kong versus International, October 2005



Source: See Annexure 10.2

Chart 14: Diesel Pump Prices: Hong Kong versus International, October 2005



Source: See Annexure 10.2

However, a comparison of pump prices across markets is inconclusive about the degree of competition within a market. First, the pump prices take no account of the availability and diversity of discounts. Second, a superior indicator is relative *profitability*, because differences in underlying costs would be accounted for. For example, the taxes and duties levied on auto-fuel in these jurisdictions have a marked impact on relative prices.

### 6.2.2 Perception 2: Competition through Discounts

During interviews conducted by the Consultancy Team, most Hong Kong oil companies claimed that the petrol and diesel discounts available in Hong Kong are among the highest in the world and are provided to the substantial majority of customers. This was cited by the oil companies as evidence of vigorous price competition.

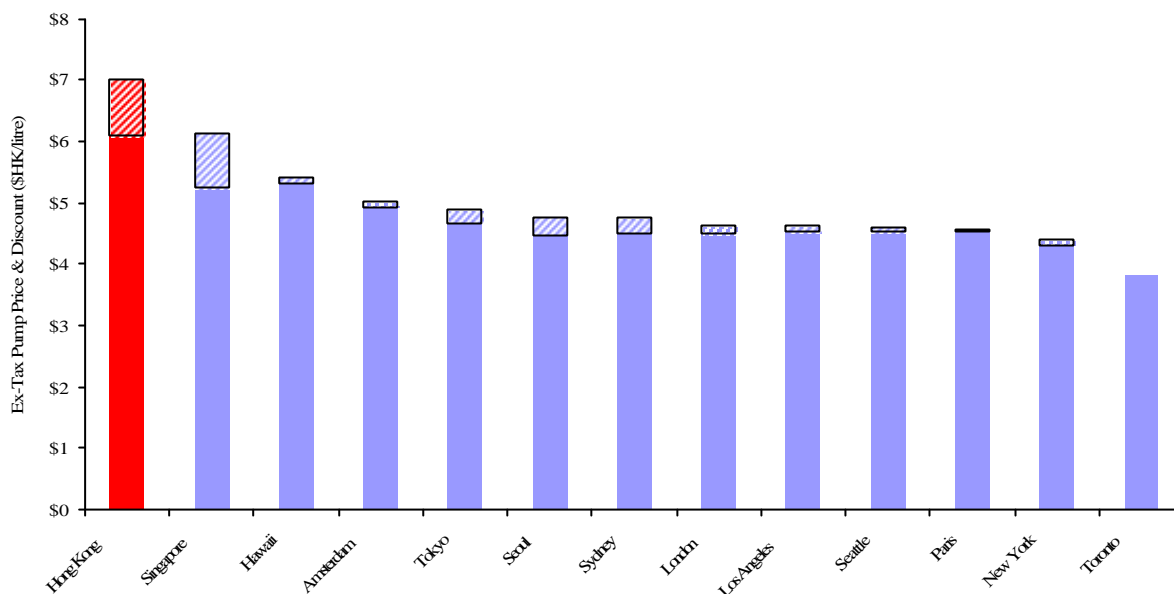
### 6.2.3 Are Hong Kong Discounts Atypical?

The available data suggests that Hong Kong discounts for both petrol and diesel are high compared to other markets. However, even after discounts and taxes are taken into account, final Hong Kong retail petrol prices, in particular, are still high compared with other metropolitan cities throughout the world.<sup>72</sup>

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<sup>72</sup> For a more comprehensive discussion and analysis of international discounts, see Annexure 10.2.

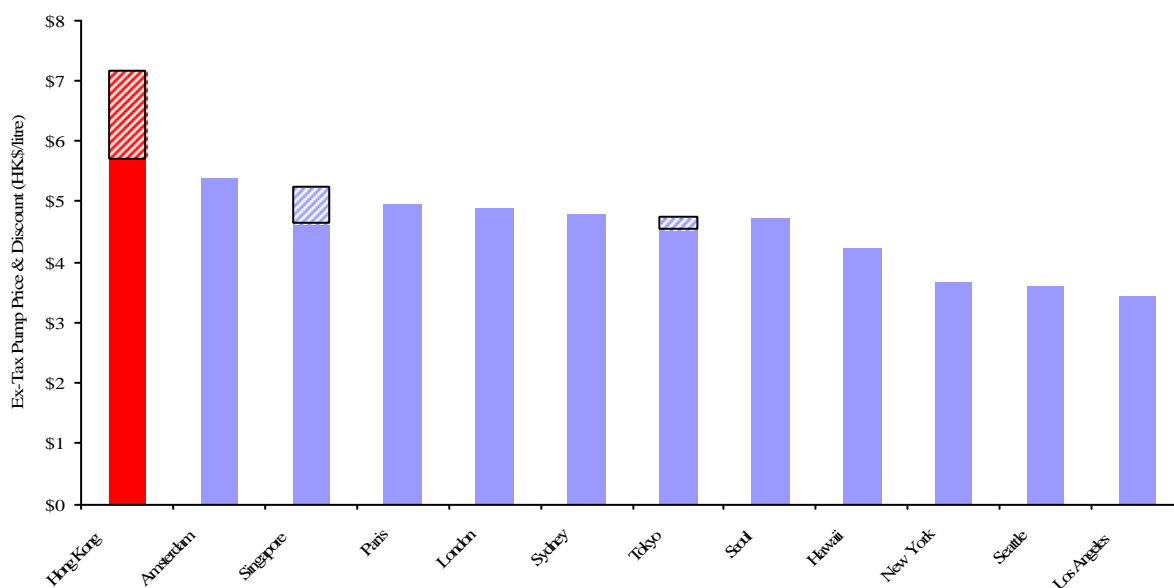
Chart 15: Petrol Pump Prices & Discounts (Ex-Tax): Hong Kong versus International, October 2005



Source: See Annexure 10.2

Note: (i) Comprehensive public information on discounts for Toronto was not available, as discounts are generally fragmented and opaque. (ii) Price data for Sydney is from September 2005.

Chart 16: Diesel Pump Prices & Discounts (Ex-Tax): Hong Kong versus International, October 2005



Source: See Annexure 10.2

Note: (i) Comprehensive public information on diesel retail and wholesale prices was 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. (iii) Price data for Sydney is from September 2005.

In isolation, a comparison of discounted prices across markets reveals little about the degree of competition in a market. However, there are some revealing insights to be gained into the competitive dynamics of the Hong Kong market by comparing and contrasting the *form* of Hong Kong's discount schemes with those observed in other markets.

Discounts are becoming increasingly commonplace internationally, but there are aspects of the discounts available in Hong Kong which are not common in other markets:

- it is generally harder to qualify for the discounts in most overseas markets compared to Hong Kong – most discounts are contingent on some other factor (e.g. cash payment, payment with a particular card or previous expenditure on other goods); and
- discounts in other markets are generally far easier to locate and understand (e.g. posted on sign boards at PFS sites), whereas Hong Kong discounts can be quite complex.

The nature of competition in the Hong Kong auto-fuel market also appears to be evolving over time. The Consumer Council Report (1999) noted that competition took the form of both giveaways (e.g. free tissues and bottles of water) and loyalty schemes.<sup>73</sup> Since that time there has been a significant growth in loyalty schemes. Whereas the Consumer Council assumed 50% availability for discounts, the information we have collected indicates that close to 100% of diesel customers receive a discount, as do at least 80% of petrol customers. Discounts offered by certain oil companies have also increased in dollar terms.

Some commentators compared Hong Kong's complex discount approach unfavourably with the typical approach in many other markets where discounts are posted at the pump. There is also a question as to whether, in a vigorously competitive market, we would expect to see *all* firms competing on the basis of loyalty schemes. Might at least one firm 'break from the pack' by, say, placing less emphasis on loyalty schemes and instead offering universally lower pump prices?

The form of price competition in a market will reflect the characteristics of that market and Hong Kong is not a typical market. The small number of private drivers in the Hong Kong market means it is critically important for oil companies to secure significant business from the commercial sectors (e.g. fleet customers). As noted above, fuel is sold to commercial buyers through PFS sites more so than in other markets. The characteristics of both private and commercial buyers, therefore, would seem to provide a sound business strategy for attempting to lock-in repeat business from customers through loyalty schemes.<sup>74</sup>

The fact that discounts vary by company indicates that oil companies are making their own decisions about pricing in the absence of an agreement about prices. Moreover, the nature of the discount schemes substantially hinders the ability of firms in the Hong Kong auto-fuel market to coordinate their conduct, either explicitly or implicitly.

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<sup>73</sup> Consumer Council Report (1999).

<sup>74</sup> Singapore has broadly similar market characteristics and auto-fuel retailers employ largely similar loyalty schemes.

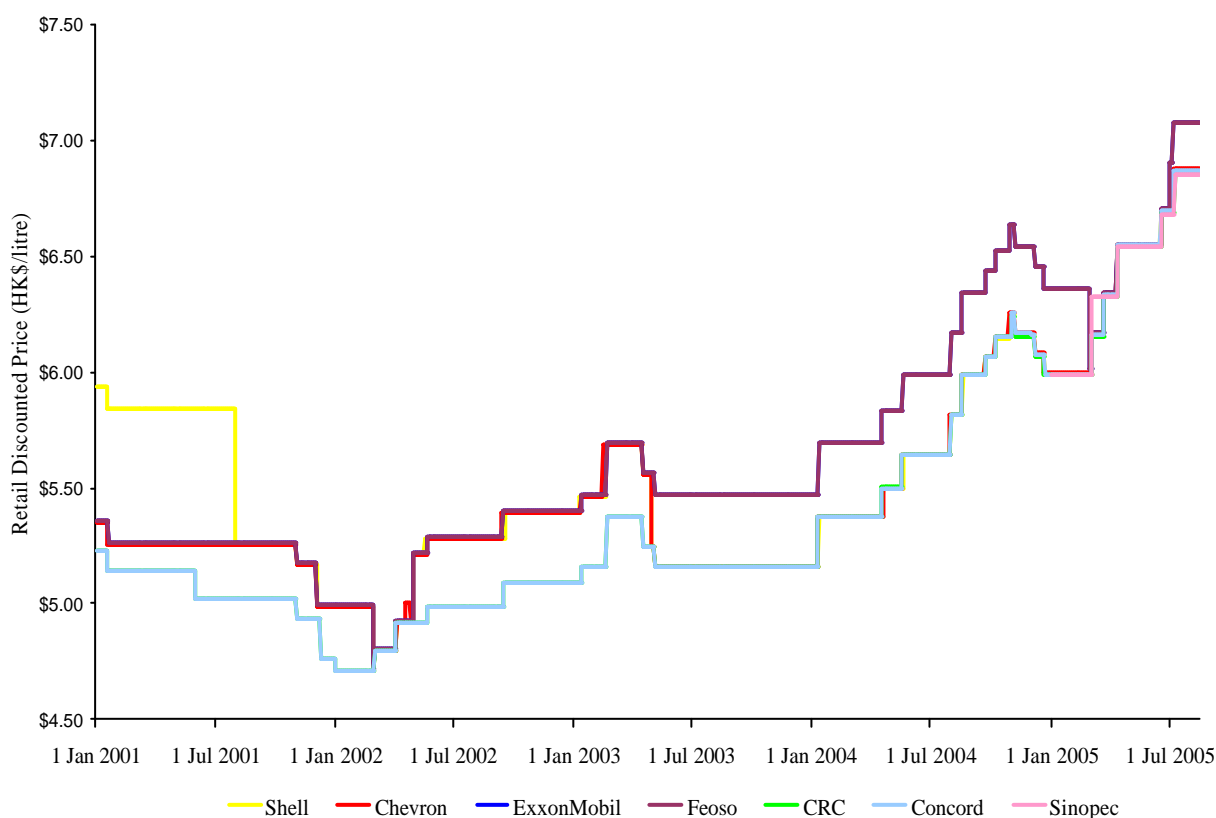
### 6.2.4 Perception 3: Prices are the Same across Companies

Interviews conducted by the Consultancy Team revealed a widely held belief that oil companies' auto-fuel prices are uniform. This was thought to provide evidence of collusion or implicit coordination.

As noted above, given that auto-fuel is effectively a homogeneous product, retailers cannot afford to set prices that are significantly higher than prevailing market prices for too long or they risk losing market share. Accordingly, the question is whether the *degree* of uniformity in retailers' prices in Hong Kong compared to other international markets suggests that the price similarity is attributable to *more* than the product homogeneity factors which would be expected in a competitive market.

As Chart 17 shows, data collected by the Consumer Council indicates that there are likely to be small variations in retail diesel prices across companies once discounts are accounted for.<sup>75</sup>

Chart 17: Retail Discounted Diesel Prices



Source: Consumer Council

<sup>75</sup> As diesel discounts also vary by *consumer*, with larger customers generally attracting larger discounts as retailers attempt to segment the market, the chart likely underestimates the true range of diesel prices available.

Petrol discounts also appear to vary slightly across companies, which could result in variations in retail prices. Whilst we were not provided with detailed time-series data by the oil companies, the information on the companies' various petrol discount schemes obtained via our phone survey on 2 September 2005 reveals that there were small variations across companies' retail petrol prices at that time.<sup>76</sup>

Small price differentials across retailers similar to those observed in Hong Kong appear to be commonplace in international markets. For example, a survey undertaken by the Consultancy Team between Monday 31 October 2005 and Sunday 6 November 2005 of petrol and diesel pump prices in locations across Sydney and New York indicated that, small price variations consistently exist across retailers within a particular geographic location.<sup>77</sup>

The following Hong Kong-specific factors (more fully discussed in section 8.1) also suggest that one would expect *less* price variation in Hong Kong:

- there are limitations on the ability of oil companies to generate sources of non-fuel revenue; and
- the cost structures of Hong Kong retailers are very similar, e.g., there are no low-cost 'hypermarkets' in Hong Kong.

These factors limit the ability of one or more firms to consistently offer prices that differ substantially from those offered by other firms.

#### **6.2.5 Perception 4: Prices Change at the Same Time**

Interviews conducted by the Consultancy Team revealed a widely held belief that Hong Kong retailers change their retail auto-fuel prices at the same time. This was thought to be symptomatic of price coordination between the oil companies.

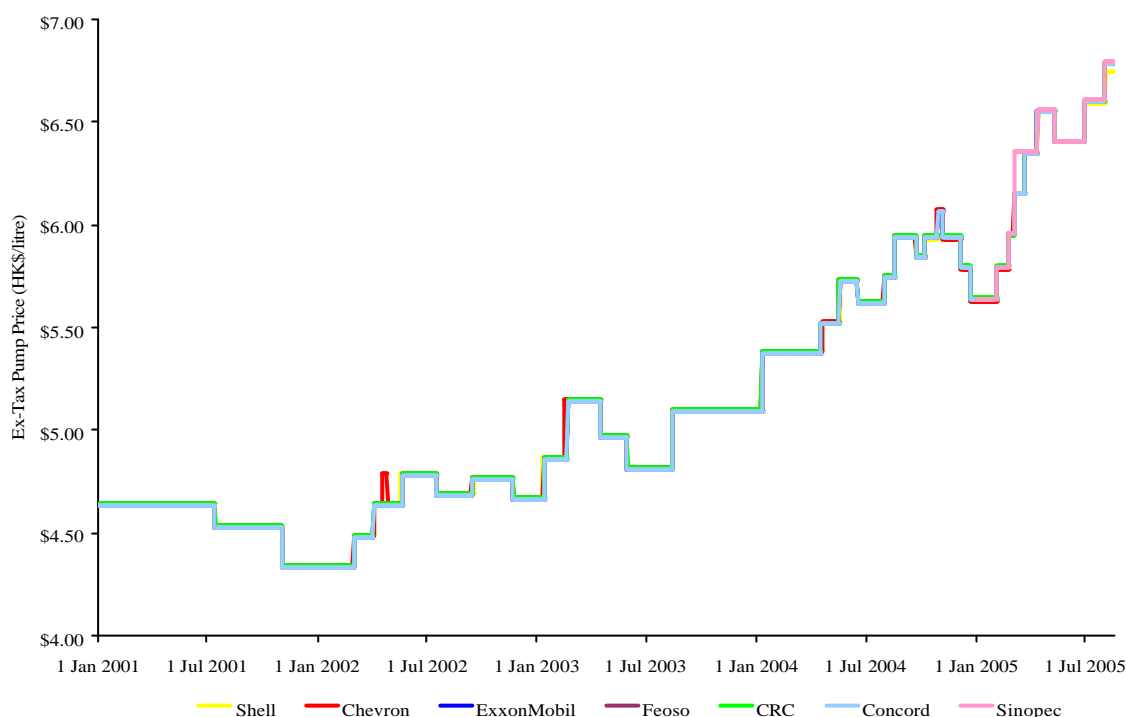
There is little doubt that retail *pump* prices move together in Hong Kong. Pump price changes are almost always publicly announced in advance by the oil companies, generally taking effect at midnight on the same day. As the following chart illustrates, competitors generally match prices within one or two days.

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<sup>76</sup> For example, a customer purchasing 100 litres on a personal account card would receive different discounts from each retailer, as outlined in the summary table in section 4.7 above.

<sup>77</sup> For Sydney data see <http://www.motormouth.com.au>. For New York data see <http://www.newyorkgasprices.com>.

Chart 18: Standard 98 RON Petrol Pump Prices (Ex-Tax)



Source: Consumer Council

The prevalence of discounting means that a study of headline pump prices may not provide a complete picture about price movements. Whilst we requested detailed time-series data on petrol and diesel discounts from the oil companies it was not provided. Accordingly, we are unable to reach any definitive conclusions regarding the exact timing of movements in ex-discount retail prices.

In any event, simultaneous price movements are an almost universal feature of competitive homogenous product markets. It is economically rational behaviour for retailers to match price *decreases* of other firms in order to maintain sales volumes. Simultaneous price *increases* are similarly rational if firms are seeking to restore their margins after a series of price cuts.

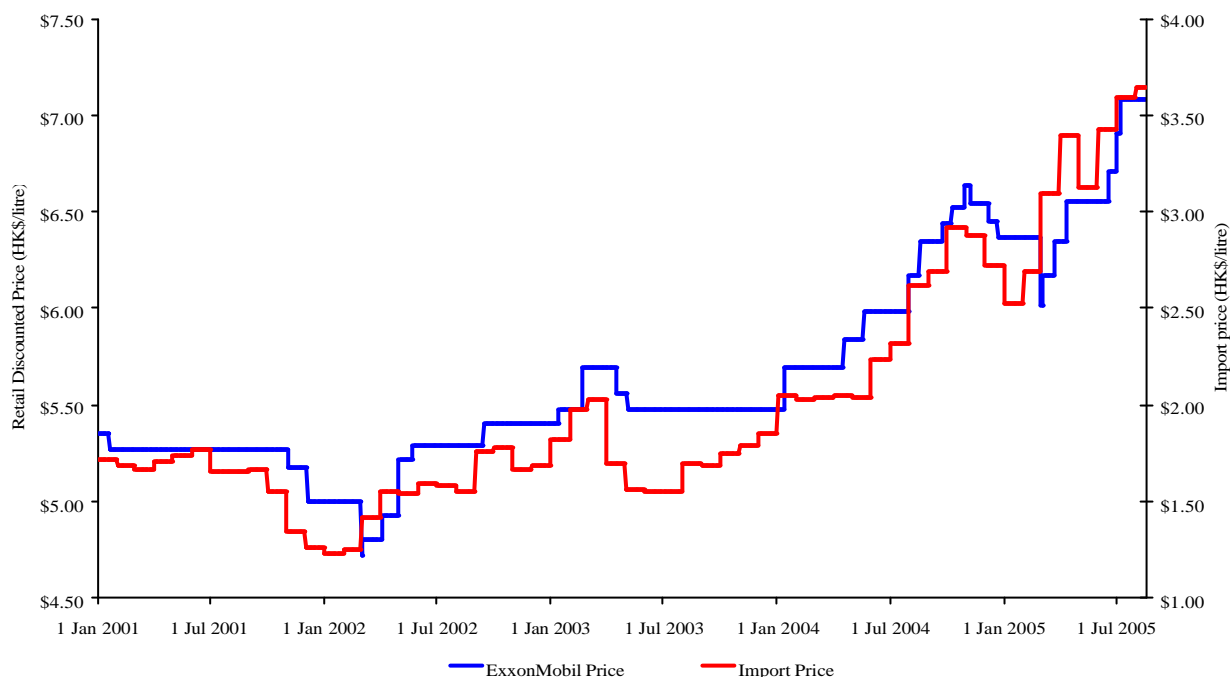
In a competitive market, movements in average retail prices also would be expected to closely reflect movements in product costs. Accordingly, if *import prices* are not moving in a similar fashion, this may be an indicator of collusion or implicit coordination. Chart 19 below tracks ExxonMobil's<sup>78</sup> retail discounted diesel prices against import prices.<sup>79</sup>

<sup>78</sup> ExxonMobil's after-discount 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.

<sup>79</sup> It should be reiterated that the Consumer Council data upon which these prices are based are subject to limitations. For example, diesel discounts also vary significantly by *consumer*, with larger customers generally attracting larger discounts. It is unlikely that the Consumer Council's data wholly capture this impact. Due to insufficient data on petrol discounts we are unable to undertake an equivalent comparison of long-term petrol retail pump prices and import prices.



Chart 19: Retail Discounted Diesel Price (Ex-Tax) versus Import Price



Source: Consumer Council

Chart 19 illustrates that movements in retail discounted prices have broadly reflected movements in underlying import costs. That is, on the strength of the information available on discounts, there do not appear to be any anomalies in the relationship between retail discounted price movements and import prices, e.g., increases in retail discounted prices absent corresponding import cost rises.

### 6.2.6 Perception 5: Prices Rise Faster than they Fall

Interviews conducted by the Consultancy Team revealed a widely held belief that Hong Kong retailers rapidly increase their prices following an import price increase, but are slower to reduce their prices in response to import price decreases. This is known as the ‘rockets and feathers phenomenon’.

As Chart 19 above illustrated, the ‘rockets and feathers’ phenomenon does *not* appear to be occurring in the Hong Kong market. In any event, a growing literature points to asymmetric price adjustment being too commonplace throughout economies to be symptomatic on its own of a lack of competition.<sup>80</sup> As Brown and Yucel explain:<sup>81</sup>

<sup>80</sup> This literature is usefully summarised by the United States Federal Trade Commission in its 2005 report into auto-fuel price changes, see: Federal Trade Commission (2005) “Gasoline Price Changes: The Dynamic of Supply, Demand and Competition”, p42.

<sup>81</sup> Brown & Yucel (2000) “Gasoline and Crude Oil Prices: Why the Asymmetry?”, Economic and Financial Review, Third Quarter, p27.

*“[A]symmetric pricing can arise whether or not there is market power. Consequently, the benefits of policies to eliminate asymmetries in the retail gasoline market are likely to be small, while the costs could be high.”*

The United Kingdom’s Mergers and Monopolies Commission (now the Competition Commission) reached the conclusion that even if it had found evidence of asymmetric cost pass-through during its 1989 auto-fuel market investigation that it was not likely to be the result of coordinated conduct.<sup>82</sup>

### **6.2.7 Perception 6: Prices Change Infrequently**

Interviews conducted by the Consultancy Team revealed a widely held belief that retail auto-fuel prices change infrequently in Hong Kong relative to other international markets. This was commonly cited as evidence of price coordination between the oil companies.

Over the **medium-term**, auto-fuel prices in most large cities generally move far more frequently than in Hong Kong. Whereas average weekly and monthly petrol and diesel prices continually fluctuate in most markets, pump prices in Hong Kong remain constant for extended periods. On the strength of limited time sequence information, Hong Kong retail discounted prices also do not change frequently. However, since the beginning of 2004 petrol and diesel pump price movements have become more frequent in Hong Kong than previously.

Medium-term price volatility is generally cited as evidence of price competition. The question is whether the atypical *lack* of medium-term price volatility observed in Hong Kong indicates price coordination between the oil companies. Part of the explanation may lie in the fact that Hong Kong has no refining capacity and therefore must import all of its auto-fuel in large increments – generally in 30,000 tonne shipments. These large shipments of refined auto-fuel, purchased at one fixed price, provide supply for several weeks. Hong Kong importers would likely find it costly to ship auto-fuel acquired at lower prices to other markets to take advantage of subsequent import price increases. In comparison, in other markets (e.g., California) refined auto-fuel can be easily transported to adjacent markets where it can fetch a higher price. In other words, the *opportunity cost* of auto-fuel in terminal storage is likely lower in Hong Kong than in many other international markets.

On the other hand, as the timing of the oil companies’ imports is unlikely to be simultaneous, some medium-term price volatility would seem rational even in the Hong Kong market. If one firm increases its retail prices to reflect the higher price it paid to replenish its inventory, it would seem rational for its competitors to match that price increase even if their inventory was acquired at a lower price. Price decreases also could be expected to flow through the market when an oil company purchases fuel at lower costs than the current inventory costs of its competitors.

Hong Kong oil companies appear to have a deliberate policy of smoothing price increases to limit the impact on consumers. Smoothing can be a legitimate business practice that may provide retail pricing stability for consumers – particularly in markets characterised by rapidly fluctuating import costs. Nonetheless, in most other auto-fuel markets companies

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<sup>82</sup> Monopolies and Mergers Commission (1989) “The Supply of Petrol: A report on the supply in the United Kingdom of petrol by wholesale”, p284.

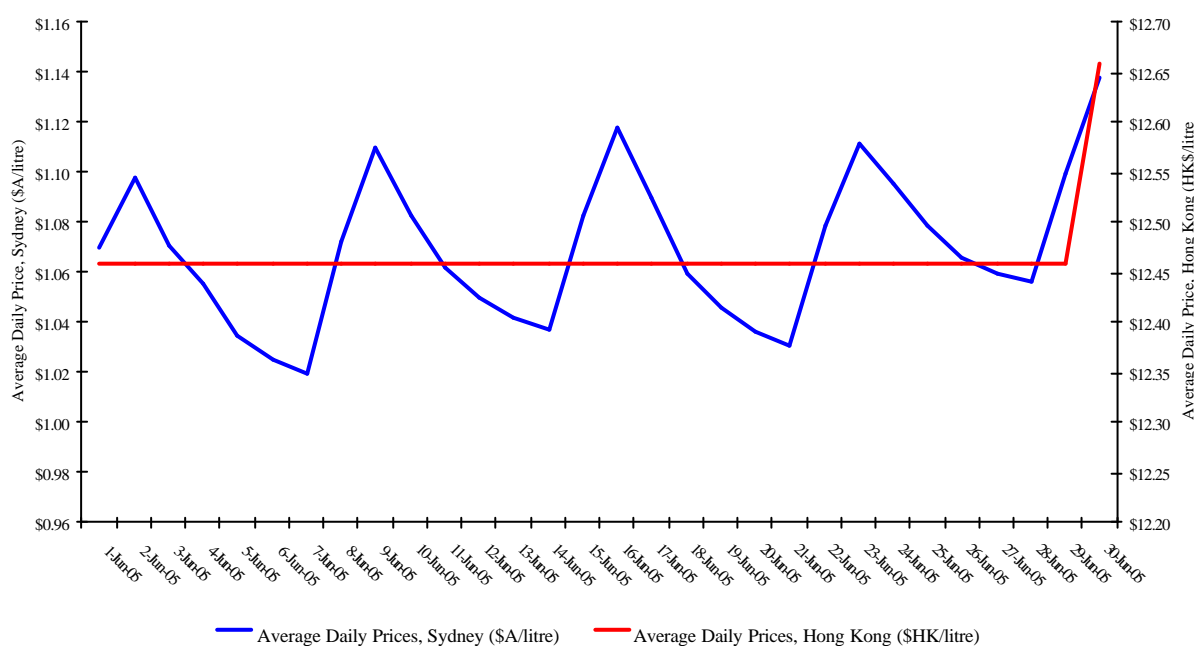
perceive a competitive benefit in reducing retail prices more quickly when product costs fall.<sup>83</sup> Accordingly, to the extent that ‘smoothing’ is a widespread practice, this may indicate coordination between Hong Kong retailers.

On the other hand, as section 6.2.3 explained, the specific demand characteristics in Hong Kong appear to result in competition being focussed on longer-term customer loyalty than one-off purchases of low-price fuel. This may limit companies’ motivation to reduce prices ahead of competitors.

Accordingly, the common adoption of ‘smoothing’ by the oil companies cannot be regarded as conclusive evidence of explicit coordination.

Retail auto-fuel prices in many cities also move far more frequently on a **short-term** basis than in Hong Kong. In many markets, prices may change as many times in one day as pump prices do in Hong Kong in a month.<sup>84</sup> Often these day-to-day price movements are cyclical, often exhibiting a ‘saw-tooth’ pattern, as illustrated in Chart 20.

Chart 20: Average Daily Petrol Pump Price, Hong Kong & Sydney, June 2005



The presence or absence of price cycles is not unanimously agreed to be indicative of the presence or absence of competition.<sup>85</sup> It is interesting to note that the Australian Competition and Consumer Commission (‘ACCC’) has found that consumers may *benefit* from price

<sup>83</sup> Supposing, for example, that *all* companies set their prices on a weighted/moving average basis, by definition, at some point in time a company’s costs would have been below that average.

<sup>84</sup> See: The Conference Board of Canada (2001) “The Final Fifteen Feet of Hose: The Canadian Gasoline Industry in the Year 2000”, p25; Australian Competition and Consumer Commission (2001) “Reducing fuel price variability”.

<sup>85</sup> The Australian Competition and Consumer Commission has stated that short-term price cycles could be the result of competition *or* price fixing by retailers. Noel (2004) concludes the short-term price cycles observed in Toronto’s auto-fuel retail market are driven by small, independent retailers, see: Noel M (2004) “Edgeworth Price Cycles: Evidence from the Toronto Retail Gasoline Market” Department of Economics, University of California, San Diego.

cycles since consumers may buy when prices are low and restrict their purchases when prices are high.

### 6.2.8 Perception 7: Prices Exhibit Limited Geographic Differences

Interviews conducted by the Consultancy Team revealed a common perception that auto-fuel prices are the same across Hong Kong. This was widely thought to be evidence of coordinated conduct by the oil companies.

On the strength of the available data, it does appear as though retail discounted prices exhibit little or no variation across Hong Kong.<sup>86</sup> By comparison, prices in most overseas markets, even those of comparable size and urbanisation to Hong Kong, do vary geographically, sometimes significantly.<sup>87</sup>

Higher costs for transporting auto-fuel are often cited as a key factor underpinning retail price differences between urban and rural areas. In 1998, for instance, the United Kingdom's Office of Fair Trading ('OFT') determined that the 4 to 5 pence difference between average prices observed in North West Scotland and the rest of the United Kingdom reflected lower sales volumes, proportionately higher unit costs and higher costs of distribution.<sup>88</sup>

As Hong Kong is geographically compact, land transport costs are probably relatively uniform and would not justify geographic price differences. The exception might be the HK\$1,800 ferry charge that companies incur delivering supplies of auto-fuel to Hong Kong Island, which likely adds approximately HK\$0.08-\$0.10/litre in costs compared to deliveries to Kowloon. However, any differential between Hong Kong and Kowloon prices could only be sustained if significant numbers of drivers were unable to avoid paying the higher Hong Kong Island price. While tunnel fees may be a disincentive to drivers making special trips to refuel in Kowloon, it is likely that significant numbers of motorists are able to refuel in Kowloon in the course of their ordinary travel.

When consumers have more nearby PFS sites to choose from, retail auto-fuel prices should generally be expected to be lower as sellers compete for consumers' business. Regression analysis undertaken by the United Kingdom's Monopolies and Mergers Commission indicated the 'considerable' significance of local price competition, as measured by the retail price of a site's nearest competition.<sup>89</sup> Accordingly, despite Hong Kong's relatively small geography, the apparent lack of price variation according to PFS density may indicate a lack of competition between retailers.

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<sup>86</sup> Whilst at least one company stated that it did provide a localised discount if it considered it was competing within a specified geographic area, no empirical evidence was provided on discounts offered per station to support these claims. Moreover, at least one other retailer indicated that its discounts are indeed identical across Hong Kong.

<sup>87</sup> By way of example, a survey undertaken by the Consultancy Team between Monday 31 October 2005 and Sunday 6 November 2005 of petrol and diesel pump prices in various locations across Sydney and New York indicated that prices vary across these cities – see section 6.2.4.

<sup>88</sup> United Kingdom Office of Fair Trading (1998) "Competition in the supply of petrol in the UK", p3. The ACCC reached a similar conclusion in 1996, see: Australian Competition and Consumer Commission (1996) "Inquiry into the Petroleum Products Declaration: Executive Summary", p6.

<sup>89</sup> United Kingdom Monopolies and Mergers Commission (1990) "The Supply of Petrol: A report on the supply in the United Kingdom of petrol by wholesale", p115. See also: United Kingdom Office of Fair Trading (1998) "Competition in the supply of petrol in the UK", p99.

However, whilst there is little or no *geographic* price variation in Hong Kong, there is an atypical degree of price variation across *customers*. That is, the *basis* for competition in Hong Kong is different to most other auto-fuel markets reflecting the differences in buyer characteristics discussed above.

While Chinaoil, Sinopec and CRC may not have Hong Kong-wide PFS networks, it also might be expected that, if they were behaving as ‘maverick players’, there would be pockets of more intense price competition. However, as section 5.8 explained, the respective cost structures of Hong Kong oil companies are likely to be too similar at present for these firms to dictate lower pricing terms in an area surrounding their PFS sites.

### **6.2.9 Perception 9: Oil Companies Limiting Octane Products**

Interviews conducted by the Consultancy Team revealed a common perception that there were fewer octane products offered in Hong Kong than in other markets. This relatively narrow product range was thought to be evidence of coordinated conduct by oil companies.

As section 4.4.1 explained, the lowest available octane rating in Hong Kong is 98 RON. A choice of different, cheaper octane ratings is usually available in other markets, including other small markets such as Singapore.<sup>90</sup>

The use of high octane fuels in Hong Kong does not reflect a government requirement but is a decision by the oil companies, who maintain that this reflects consumer preference. Specifically, it is said to suit the widely used luxury vehicles and Hong Kong’s ‘hilly terrain’.<sup>91</sup> However, a survey undertaken by the Consumer Council in 2000<sup>92</sup> revealed that approximately 75% of car models in Hong Kong are recommended to use octane 95 by their manufacturers.

The cost difference between unleaded 98 RON and unleaded 95 RON is approximately HK\$0.20/litre.

However, there are practical hurdles to offering a wider range of fuels in the Hong Kong market. In order to provide greater consumer choice in octane ratings, PFS sites would need to have additional storage tanks, for which there is little room at most PFS sites. Moreover, offering an additional octane rating would also require the importation of a separate product that would need to be stored in physically separate terminal storage facilities. Downstream demand must be sufficient for importers to obtain economies of scale in shipping. Although Singapore is a smaller market than Hong Kong, the presence of refineries in Singapore means retailers can readily access the full range of octane products which those refineries produce for sale across the region, without the need for additional terminal storage facilities.

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<sup>90</sup> In Singapore, in addition to unleaded 98 RON, both 92- and 95-octane are retailed. In Mainland China the most commonly sold unleaded petrol is unleaded 90 RON. In Europe and North America octane ratings range between 92 and 97 RON.

<sup>91</sup> The view was expressed by a number of oil companies that consumers did not respond favourably when 95 RON unleaded petrol was introduced to partner the 97 RON leaded petrol. Many customers were said to have tried the new offering before switching back to the higher performance 97 RON leaded petrol. The oil companies subsequently introduced 97 RON as their standard unleaded offering, which was later upgraded to 98 RON.

<sup>92</sup> Survey results released in CHOICE (No. 285), 17 July 2000, p26.

Further, in the absence of their own terminal facilities or access to a dedicated tank at the terminal facilities of existing operators, new entrants are unlikely to be able to import fuels at octane levels that are different to those supplied by the vertically integrated oil companies (even if they wanted to pursue a ‘cheap and cheerful’ pricing strategy by only selling, for example, 95 RON through their PFS sites). By contrast, retailers in Singapore are able to purchase at the terminal gate any of the range of octanes that the Singapore refineries produce for the regional market.

### 6.2.10 Conclusions on Price Setting and Adjustment Practices

Table 11 summarises our findings on the extent to which the price setting and adjustment practices of the Hong Kong oil companies are significantly different to those of retailers in other markets.

Table 11: Summary of Assessment of Hong Kong Pricing Practices

Conduct in Hong Kong market	Whether found in other markets	Indicative assessment about degree of competition
Prices very similar across companies	Common	Similar conduct in competitive markets
Prices change at the same time	Common	
Petrol prices among highest in the world	Atypical	Reveals little about degree of coordination
No short-term price fluctuations	Atypical	
Prices do not rise faster than they fall	Inconclusive findings in other markets	
Limited range of octane products offered	Atypical	<i>Potentially</i> indicative of explicit or implicit coordination but at least partially explained by Hong Kong-specific factors
Limited geographic price variation	Atypical	
Limited medium-term price variability	Atypical	
Competition through discount schemes	Atypical	Indicates competition is effective

## 7. Applying the Legal Tests

In this chapter we consider whether, if presented with the market structure discussed in chapter 5 and evidence on margins and pricing conduct discussed in chapter 6, courts in other jurisdictions would likely find a breach of competition law.

### 7.1 Approach in Other Jurisdictions

#### 7.1.1 United States

Section 1 of the Sherman Act prohibits price fixing agreements. United States antitrust law does not prohibit oligopolists from pricing above competitive levels in the absence of an agreement to do so:<sup>93</sup>

*“Courts have noted that the Sherman Act prohibits agreements, and they have almost uniformly held, at least in the pricing area, that...individual pricing decisions (even when each firm rests its own decision upon its belief that competitors will do the same) do not constitute an unlawful agreement... That is not because such pricing is desirable (it is not), but because it is close to impossible to devise a judicially enforceable remedy for “interdependent” pricing. How does one order a firm to set its prices without regard to the likely reactions of its competitors?”*

In a recent case, a United States appeals court summarised authorities on the approach to evidence required to imply an agreement to fix prices:<sup>94</sup>

*“In short, there are three steps to the summary judgment analysis in the price fixing context. First, the court must decide whether the plaintiff has established a pattern of parallel conduct. Second, it must decide whether the plaintiff has established the existence of one or more plus factors that “tends to exclude the possibility that the alleged conspirators acted independently.” ... The existence of such a plus factor generates an inference of illegal price fixing. Third, if the first two steps are satisfied, the defendants may rebut the inference of collusion by presenting evidence establishing that no reasonable fact-finder could conclude that they entered into a price fixing conspiracy.”*

There is no definitive list of ‘plus factors’, but those that have been identified by United States courts include:<sup>95</sup>

- **motive to conspire:** although regularly identified by the courts as a ‘plus factor’, the inclusion of conspiratorial motivation has been criticised from an economic perspective, as a motive to conspire in the sense of a reasonable prospect of increasing profits through collective action is a logical corollary of implicit coordination;

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<sup>93</sup> Clamp-All Corp v Cast Iron Soil Pipe Inst., 851 F. 2d 478 (1st Cir. 1988) at 444, cited in Werden (2004), op cit, p769.

<sup>94</sup> Williamson Oil Co v Philip Morris USA, 346 F.3d 1287 (11<sup>th</sup> Cir. 2003) at 1301.

<sup>95</sup> Merck-Medco Managed Care v Rite Aid Corp., 201 F.3d 436 (4<sup>th</sup> Cir. 1999).

- **opportunity to conspire:** evidence of opportunity to conspire, such as meetings and telephone calls, may support the inference of an agreement;
- **a high level of inter-firm communications:** this is related to the opportunity to conspire;
- **irrational acts or acts contrary to a defendant's economic interest, but rational if the alleged agreement existed:** what courts mean by this 'plus factor' is that a "defendant acted in a way that, but for a hypothesis of joint action [i.e. collusion], would not be in its own interest";<sup>96</sup> and
- **departure from normal business practices:** like irrational acts, departures from normal business practice can amount to 'plus factors' as they raise an issue as to why a firm has acted in a way which 'is out of the ordinary'.

### 7.1.2 Australia

Section 45 of the Trade Practices Act 1974 prohibits certain types of agreement, including those that fix prices.

Australian courts have consistently held that conscious parallelism does not constitute a contravention of the Trade Practices Act:<sup>97</sup>

*"The cases require that at least one party 'assume an obligation' or give an 'assurance' or 'undertaking' that it will act in a certain way. A mere expectation that as a matter of fact a party will act in a certain way is not enough, even if it has been engendered by that party."*

Australian courts have struggled to identify what constitutes relevant circumstantial evidence of an agreement. The current judicial approach is that:<sup>98</sup>

*"Parallel conduct may constitute circumstantial evidence from which an arrangement or understanding may be inferred. It depends on the facts of each case... Plainly when a credible explanation is given by a defendant it may be sufficient to negate the inference of an arrangement or understanding"*.

The Australian courts have explicitly recognised that, even in the absence of collusion, parallel pricing is a feature of auto-fuel markets:<sup>99</sup>

*"The retail petroleum products market, with its highly visible price boards and mobile customers, is one where a trader's prices and the fluctuations thereof are as readily apparent to competitors as they are to customers. Therefore parallel pricing in itself,*

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<sup>96</sup> Illinois Corporate Travel Inc, v American Airlines, Inc. 806 F. 2d 722, 726 (7<sup>th</sup> Cir. 1986), cited in Werden (2004), op cit, p749.

<sup>97</sup> Australian Competition and Consumer Commission v CC (NSW) Pty Ltd (1999) 92 FCR 375 at 141, cited with approval in Rural Press Ltd v Australian Competition and Consumer Commission (2002) 118 FCR 236 at 79, and Apco Service Stations Pty Ltd v Australian Competition and Consumer Commission [2005] FCAFC 161 at 45.

<sup>98</sup> Trade Practices Commission v Email (1980) ATPR 40-172 citing Trade Practices Commission v Nicholas Enterprises Pty Ltd (1979) ATPR 40-126 at 18,344.

<sup>99</sup> Australian Competition and Consumer Commission v Mobil Oil Australia Limited (1997) ATPR 41-568 at 43,896.



*in this particular market, is as likely to follow from the observation and independent decision of rival traders as from prior arrangement.”*

### 7.1.3 European Union

Article 81 of the EC Treaty prohibits agreements or concerted practices that have the purpose or effect of preventing, restricting or distorting competition. The European Court of Justice (‘ECJ’) has also found that parallel prices are insufficient proof of a contravention of Article 81:<sup>100</sup>

*“... it must be noted that parallel conduct cannot be regarded as furnishing proof of concertation unless concertation constitutes the only plausible explanation for such conduct. It is necessary to bear in mind that, although Article 85<sup>101</sup> of the Treaty prohibits any form of collusion which distorts competition, it does not deprive economic operators of the right to adapt themselves intelligently to the existing and anticipated conduct of their competitors”.*

The ECJ has found that systematic announcement of price changes could be regarded as a rational response to the nature of the market and that similar timing of price changes could be legitimately explained by market transparency.<sup>102</sup>

Article 82 of the EC Treaty separately prohibits abuse of a dominant market position by one or more firms. Firms can hold dominance jointly because of factors giving rise to a connection between them, such that they are able to adopt a common policy on the market.<sup>103</sup> While not requiring an explicit agreement, joint dominance does require more than shared expectations of parallel pricing behaviour amongst oligopolists. To find a contravention of Article 82, it is necessary to show that:

- each firm is able to monitor the compliance of other competitors with the common policy;
- coordination is sustainable through the swift punishment of those who deviate from the common policy; and
- the reaction of current and future competitors, as well as customers, will not jeopardise the results expected from the common policy: e.g. new entrants or fringe competitors could not challenge the common price fixing policy.<sup>104</sup>

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<sup>100</sup> Cases 89/85 et al A. Ahlström Osaakeyhtiö and others v Commission (The Wood Pulp Case), at 70-71.

<sup>101</sup> The former Article 85 is equivalent to current Article 81.

<sup>102</sup> The Wood Pulp Case, at 126.

<sup>103</sup> Atlantic Container Line AB & ors v Commission of the European Communities T-191/98, T-212/98 to T-214/98, p652.

<sup>104</sup> See factors set out in Case T-342/99 Airtours plc v Commission [2002] ECR II-2585. The case was a merger case, but is nonetheless relevant to an Article 82 assessment.

#### **7.1.4 Japan**

The Act Concerning Prohibition of Private Monopolisation and Maintenance of Fair Trade prohibits unreasonable restraints of trade, which include:

*“business activities, by which any entrepreneur, by contract, agreement or any other concerted actions, irrespective of its names, with other entrepreneurs, mutually restrict or conduct their business activities in such a manner as to fix, maintain or increase prices...thereby causing, contrary to the public interest, a substantial restraint of competition in any particular field of trade.”*

Again, there must be an agreement to attract the prohibition and ‘communication of intention’ is required. The ‘communication of intention’ does not have to be an explicit agreement of a mutually binding nature. It will suffice if parties have mutually acknowledged the acts of others to raise prices and tacitly approved.<sup>105</sup>

#### **7.1.5 COMPAG Guidelines**

One of the anti-competitive practices identified in the COMPAG Guidelines is:<sup>106</sup>

*“price-fixing intended to distort the normal operation of the market, increase the cost for purchasers, and have the effect of impairing economic efficiency or free trade.”*

The requirement that price fixing produce an outcome which distorts the normal operation of the market is consistent with the distinction between conscious parallelism and collusion: the COMPAG Guidelines require more than ‘mere’ parallel pricing, which is an expected or ‘normal’ outcome in a homogeneous product oligopoly market, as evidence of collusion.

### **7.2 Assessing the Hong Kong Market**

#### **7.2.1 Assessment against International Evidentiary Standards**

Applying the United States approach, which is a reasonable proxy for the other overseas approaches, we asked the following questions in relation to the evidence we gathered on the Hong Kong auto-fuel market:

- (a) Is there is a pattern of parallel conduct?
- (b) If the answer to (a) is yes, is there evidence of any ‘plus factors’ that might exclude the possibility that the oil companies have acted independently?
- (c) If the answer to (b) 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?

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<sup>105</sup> Judgment of the Tokyo Appellate Court, November 9, 1956 (Gyosai-reishu 7-1-2849; Japan Oil case), cited in H Oda (1999), Japanese Law 2<sup>nd</sup> ed, p315.

<sup>106</sup> See clause 9(a) of the COMPAG Guidelines.

### (A) Is there a pattern of Parallel Conduct?

Clearly, the pump prices of the individual oil companies did move together in Hong Kong. However, we also found that there are differences in the discount arrangements and in the ‘real’ prices between oil companies, although we have been unable to reach definitive conclusions regarding the exact timing of movements in retail discounted prices.

Accordingly, as a result of the prevalence of discounts in the Hong Kong market, there may not be coordinated pricing between the oil companies, in which case any prosecution would fail at this first hurdle. However, for the purposes of this discussion, we will assume that there is evidence of coordinated pricing.

### (B) Are there any ‘Plus Factors’?

- **Motive to conspire:** The Hong Kong auto-fuel market is characterised both by product homogeneity, which leads to competition largely based on price, and by high fixed costs, which must be recovered irrespective of the volume of sales made. These factors may provide a stronger motivation than in many other sectors for competitors to conspire to hold retail prices high so that fixed costs are covered.
- **Opportunity to conspire:** The Hong Kong practice of oil companies publicly announcing pump price changes creates an opportunity to conspire. However, pump prices are not the ‘real’ prices for auto-fuel, and the lack of transparency of the various discount schemes would make it difficult for oil companies to monitor each other’s prices compared to other markets which rely on advertised pump-based discounted prices.
- **A high level of inter-firm communication:** In the absence of information gathering powers, we were unable to determine whether the oil companies directly communicated price changes with each other. They strongly denied that they did so in our interviews.
- **Irrational acts or acts contrary to a defendant’s economic interest, but rational if the alleged agreement existed:** Hong Kong oil companies smooth out fluctuations in product costs when setting retail prices. By doing so, they may be operating against their own economic interests since there may be a competitive advantage to be obtained by reducing prices before competitors. Similarly, it could be argued that the decision by all oil companies to stock 98 RON petrol (and not 95 RON petrol) is contrary to oil companies’ own interests because the ability to offer the cheaper product could give a firm a competitive advantage.
- **Departure from normal business practices:** As discussed in sections 6.2.7 and 6.2.8, 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.

It is unlikely that the evidence of higher margins in Hong Kong compared to other large cities would be accepted by itself as a ‘plus factor’. As discussed in Areeda and Hovenkamp’s seminal text, high profit margins can only be used as evidence of collusion where the

alternative explanation of conscious parallelism is not available:<sup>107</sup>

*“...a number of market factors – such as product variety or infrequent large orders - might impede firms, although few in number, from attaining monopoly-like results through mere interdependence. Whenever we can be quite sure that those impediments are powerful enough to guarantee near-competitive pricing, notwithstanding recognized interdependence, it would follow that monopoly-like pricing could only be achieved with the aid of collaboration beyond mere interdependence. In that event, the presence of substantially noncompetitive pricing would be evidence of traditional conspiracy. Persistent and otherwise explained excess profits would prove noncompetitive behavior.*

*This approach would be feasible only where the impediments to effective tacit coordination are very clear while the actual economic performance is obviously monopoly-like and otherwise unexplained.”*

The Hong Kong auto-fuel market, as a homogeneous product oligopoly, exhibits characteristics that would be consistent with conscious parallelism, and so the test of clear impediments to tacit collusion is not met. For that reason, a finding that firms’ profits are high would not support a finding of collusion.

### **(C) Is there Rebuttal Evidence?**

The oil companies would likely lead rebuttal evidence to explain the departures from ‘normal business practices’ and potential ‘irrational acts’ outlined above, for example:

- movements in retail prices reflect changes in underlying product costs;
- the small number of private drivers and resulting importance of large commercial users means that customer-based discount schemes are likely to be a sound business strategy, which may decrease geographic price variations;
- Hong Kong is dependent on imports. The volatility of crude oil prices may have a smaller impact on oil companies importing bulk shipments than on oil companies purchasing smaller quantities more regularly from a refinery. Moreover, smoothing can be a legitimate business practice in many circumstances;
- the relatively small size of PFS sites may mean there is insufficient space to sell further octane rating. Oil companies would also face scale issues in importation and storage; and
- discounts are not transparent, so it would be difficult to detect hidden price cuts and therefore sustain coordination.

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<sup>107</sup> Areeda and Hovenkamp (2003), Antitrust Law, 2<sup>nd</sup> ed , para 1434d3.

## **(D) Joint Dominance**

The EU concept of joint dominance (see discussion in section 7.1.3) does not explicitly form part of the competition law of other economies, such as the United States and Australia. However, even if joint dominance provisions applied in Hong Kong, we do not believe that the outcome would be any different when analysing the current state of competition in the Hong Kong auto-fuel industry.

A finding of joint dominance between as many as six firms with such a range of market shares would be unlikely.<sup>108</sup> Further, as set out above, to be jointly dominant, each firm must be able to monitor compliance with a common policy, which may not be possible in the Hong Kong auto-fuel market given the discount schemes that would enable the oil companies to undercut prices without ready detection.

It is also unlikely that the three major oil companies, Shell, ExxonMobil and Chevron, would be found to hold dominance jointly. While Shell, ExxonMobil and Chevron account for most of the market between them, it is unlikely that they would be found jointly dominant because CRC, Sinopec and Chinaoil could challenge a common pricing policy, depending on the level at which prices were set.

Even if some or all of the oil companies were held to be jointly dominant, that is not in itself illegal without abuse of that position. An example of such abuse is following a common policy of denying potential rivals access to infrastructure. As discussed in chapter 3, concerns have been expressed about the lack of terminal access for non-vertically integrated oil companies. However, given the new entrants' lack of scale to justify direct imports, the availability of the alternative of wholesale supply and the example of terminal access achieved by a non-vertically integrated LPG supplier with scale, we believe it would be difficult to successfully argue that the lack of terminal access was the result of joint dominance rather than being legitimate market conduct.

### **7.2.2 Conclusion**

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 competition laws similar to those which apply in other developed economies. Price fixing within the meaning of the COMPAG Guidelines also appears not to have occurred.

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<sup>108</sup> We do not consider Feoso to be an independent player due to its contractual arrangements with ExxonMobil, and Concord, with only one independent (i.e. non-joint-venture) site, is too small a player to have a significant market impact.

## 8. Recommendations

This chapter discusses recommendations to address our key findings about the Hong Kong auto-fuel market.

### 8.1 What are the Problems?

When considering regulatory intervention, it is very important to clearly identify the underlying causes of the problems which regulation is meant to address.

Our analysis of Hong Kong margins indicates that there are markets which appear to be characterised by more intensive competition than Hong Kong. However, while there is a risk of collusion, we have found no clear evidence of collusion in the Hong Kong market.

The following structural features of the Hong Kong market are more likely to explain prices and margins being higher in Hong Kong than some other markets:

- the overall market size is relatively small. Hong Kong consumption is less than 5% of New York State's. Furthermore, volumes are declining, with diesel volumes declining by nearly 30% over the last five years. The oil companies face significant fixed costs which they incur largely regardless of the volume of auto-fuel sold, including land premiums, PFS construction costs and terminal facility costs. As volumes decline, a higher percentage of these fixed costs have to be recovered from each litre of auto-fuel. Higher per unit costs are likely to translate into higher retail prices;
- the small size of most PFS sites limits both fuel and non-fuel activities. The lack of enough storage space at PFS sites is a practical barrier to oil companies importing a range of octane products. There are also limited opportunities to generate significant non-fuel revenue to help meet the fixed costs of PFS sites, with Hong Kong non-fuel revenue being less than 20% of typical United States non-fuel revenues through PFS sites;
- Hong Kong's dependency on imported auto-fuel acquired by the oil companies from the same limited number of refineries (mainly Singapore) means that the oil companies end up having similar cost bases. This limits the incentive and opportunity for the oil companies to undercut each other's prices;
- the Hong Kong market is highly concentrated, with the three main oil companies, Shell, Chevron and ExxonMobil, accounting for over 95% of the total market in 2004. Their market shares have remained relatively stable for some time;
- the market lacks a 'maverick' player which is prepared to challenge the settled patterns of competition between the existing competitors. The three smaller oil companies, CRC, Sinopec and Chinaoil, seem unable or unwilling to operate as 'mavericks'. In part, this is because they probably have similar cost bases to the three major oil companies, as noted above. However, each also has struggled to build a territory wide PFS network which seems crucial to success in the Hong Kong market. Chinaoil and Sinopec have faced delays and difficulties in obtaining the necessary planning consents and other permits; and

- the Hong Kong market is highly vertically integrated, with four of the six main oil companies integrated from terminal to pump. With their limited PFS networks, Sinopec and Chinaoil currently do not have the scale to warrant directly importing auto-fuel but even if they acquire more PFS sites and attain the necessary scale, they are unlikely to find a suitable site on which to construct their own terminal facilities.

## 8.2 Constraints on What Regulation can Achieve

Once the problems are identified, it is then necessary to consider whether Government intervention can feasibly address them. A number of the structural features outlined above are inherent to the Hong Kong auto-fuel market:

- as overseas auto-fuel inquiries have noted, retail auto-fuel prices are driven by product costs set within the global market, which obviously are beyond Hong Kong's influence;<sup>109</sup>
- regulation cannot change the inherent structural features of the Hong Kong auto-fuel market, particularly its relatively small scale;
- Hong Kong is likely to continue to be dependent on imported auto-fuel;
- Hong Kong's densely built environment makes it unlikely that larger PFS sites can be made available, other than in new town developments, which means that space constraints will continue to limit the scope for non-fuel activities and the sale of a wider range of octane products; and
- the lower prices in Mainland China and increasing level of cross border traffic means that Mainland China sourced auto-fuel, whether legally or illegally purchased, is likely to remain a material feature of the Hong Kong auto-fuel market, affecting scale.

Government policy in the auto-fuel industry cannot be decided in isolation from other Government policies and economic and social priorities:

- if Hong Kong relaxed its environmental standards, the Hong Kong market could potentially benefit from the huge scale of Mainland China refineries. However, the trade-off would be a potential deterioration of Hong Kong's air quality, which is already the subject of considerable public concern; and
- the Government makes revenue choices that affect the price of auto-fuel. However, our Terms of Reference specifically exclude recommendations on the taxes levied on auto-fuel. High prices, caused in part by high levels of tax, may well reinforce the small scale of the market, including by providing greater incentive to purchase illegal auto-fuel.

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<sup>109</sup> See for example: Office of Fair Trading (1998) "Competition in the supply of petrol in the UK, A report by the Office of Fair Trading", p45, The Conference Board of Canada (2001) "The Final Fifteen Feet of Hose: The Canadian Gasoline Industry in the Year 2000", piv: "The rapid increase in world crude oil prices is the main culprit in rising Canadian gasoline prices."; Australian Competition and Consumer Commission (2001) "Reducing Fuel Price Variability", p31.

### 8.3 General Framework for Assessing the Need for Regulation

Although a market problem may be identified as potentially correctible through regulation, it does not necessarily mean that regulatory intervention is a good idea.

The key question to be asked when considering regulation is whether there is a demonstrable and enduring market failure.<sup>110</sup> This is important since markets have a capacity to self-correct.

Even where an enduring market failure is found, new regulation should be approached cautiously, having regard to:

- the likely costs of regulating;
- the risk of regulatory failure;
- the extent of the problem sought to be addressed; and
- the benefits likely to be achieved.

The result of well-intentioned but ill-conceived regulation has sometimes been to increase prices.<sup>111</sup>

Looking at the Hong Kong auto-fuel market, there are particular factors that reinforce the need to take a cautious approach before proposing additional regulation:

- there is evidence that the Hong Kong auto-fuel market has become more competitive in recent years:
  - Sinopec and Chinaoil have entered the market, largely as a result of the Government's site allocation reforms, and they may increase their scale as they commence operation at sites currently under development and potentially obtain more sites;
  - 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; and
  - since 1999, the gross margins have fallen, by 14% for petrol and by 25% for diesel;
- there is good reason to believe that the Hong Kong auto-fuel market could become more competitive over the medium-term. Hong Kong's approach of leasing PFS sites for fixed terms and then re-tendering them already provides an important mechanism

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<sup>110</sup> See e.g. OECD (1992) Regulatory Reform, Privatisation and Competition Policy, p11.

<sup>111</sup> See for example: The Conference Board of Canada (2001) "The Final Fifteen Feet of Hose: The Canadian Gasoline Industry in the Year 2000", p36. The study concluded that prices in Charlottetown, where price regulation powers are exercised by the Public Utilities Commission, are generally higher than the national average. While other factors were found to have contributed to the relatively high prices, the study concluded that regulation had kept prices higher.



to progressively address the incumbency of existing operators. The current asymmetry in scale and market presence between Shell, ExxonMobil and Chevron, on the one hand, and CRC, Chinaoil and Sinopec, on the other may narrow over time, increasing the competitive tension in the market. Approximately ten sites will come up for re-tender in 2007-2008. While there is, of course, no guarantee the smaller operators will win these sites, they have an equivalent opportunity to bid against the three largest operators. As discussed below, the ‘super-bid’ option provides some assistance to entrants to build scale;

- the risks associated with further regulation in the Hong Kong auto-fuel market could be higher than those typically encountered with other fixed cost industries because of Hong Kong’s small scale and the declining throughput which impairs recovery of fixed costs. Volumes are likely to continue to decline, including as a result of the Government’s incentives for LPG; and
- as Hong Kong does not have existing general competition regulation, any new oil sector-specific regulation would involve costs to the Government and industry in establishing a regulator to administer and enforce regulation.

## **8.4 Anti-cartel and Merger Rules**

### **8.4.1 Introduction of Competition Safeguards**

Legal prohibitions against collusion in the form of anti-cartel laws would better enable the detection and prosecution of such conduct, and could also provide the Government with powers to compel the production of documents where it had a reason to believe that a company was in breach of the laws. An associated leniency policy would encourage ‘whistleblowers’ to report collusion, which international experience suggests is the way many cartels are uncovered.

The risks of cartel behaviour are likely to escalate if the market becomes more concentrated. The potential for coordinated conduct may increase as a result of a merger between the parent companies of operators currently in the market (such as occurred between Esso and Mobil) or as a result of the exit of an operator from the Hong Kong market and acquisition of its assets by a remaining competitor (such as Shell’s acquisition of BP’s PFS sites). Mergers are not necessarily anti-competitive and in high fixed cost sectors like the oil industry can deliver efficiency gains which are passed on to consumers. However, legal protections would allow scrutiny of whether a merger is likely to be anti-competitive.

We do not consider that separate provisions dealing with the misuse of a dominant position by a single firm, such as those that exist in Hong Kong’s telecommunications regime, are necessary if merger rules are introduced.

### **8.4.2 Sector-Specific versus General Competition Laws**

Anti-cartel and merger rules can take two forms: sector-specific laws, such as exist currently in Hong Kong’s telecommunications industry, or general antitrust laws applying across the economy, such as those recently introduced in Singapore. 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 cover the auto-fuel industry, the Government should await the outcome of the separate COMPAG

inquiry into whether Hong Kong should have such a law.

If the Government decides against general competition law we recommend that the Government consider sector-specific anti-cartel and merger laws for the auto-fuel industry. There are disadvantages in fragmenting the administration of competition safeguards on a sector-specific basis and, as discussed above, material costs and risks in introducing sector-specific law. Nonetheless, we believe that the inherent structure of the Hong Kong auto-fuel market warrants the Government considering such legal protections.

Anti-cartel regulation can provide for a civil or criminal enforcement regime or both concurrently. A distinction is usually drawn between ‘hard core’ cartel conduct, which is a criminal offence, and other types of collusion, which are subject to civil penalties. ‘Hard core’ conduct is generally covert and undertaken with anti-competitive intention and an awareness of illegality. Criminal sanctions, including imprisonment, are available in the United States, United Kingdom, Canada, Japan, Korea, Germany, France and Norway.

Should the Government decide to legislate on a sector-specific basis, we recommend both criminal and civil penalties. However, as Hong Kong has limited experience of competition laws, if such laws were to be introduced, an option may be to first introduce anti-cartel prohibitions as civil offences and later move to also introduce criminal offences to reflect international best practice. This is the approach Hong Kong took to insider trading laws.

Merger clearance procedures can either be ex-ante, which require notification and pre-clearance of mergers before they take place, or ex-post, which allows a regulator or court to intervene after the merger has occurred to require divestiture if it is found to substantially lessen competition. In the telecommunications sector, Hong Kong adopted a hybrid approach which provides for ex-post intervention in mergers but allows merging parties to seek a binding ex-ante clearance from OFTA in advance. If sector-specific laws were to be proposed for the auto-fuel industry, a similar model should apply.

### **8.4.3 Regulatory Framework**

If sector-specific laws are to be introduced, the Government will need to decide on who should administer that new regulatory regime. International best practice suggests that government departments, given their policy-making role and responsibilities to a political official, are not the appropriate bodies to administer competition rules.

Sector-specific regulation requires the allocation of three broad functions:

- who will investigate whether there has been anti-competitive conduct?
- who will ‘prosecute’ the parties alleged to have committed the anti-competitive conduct?
- who will adjudicate whether the anti-competitive conduct did occur and decide appropriate penalties?

There are many valid models for the allocation of these responsibilities. For example, under securities laws, insider trading, which is both a criminal and civil offence in Hong Kong, is investigated by an industry specific regulator, the Securities and Futures Commission (‘SFC’). Following a report from the SFC, civil action for insider trading can be brought by the Financial Secretary before a specialist tribunal established under these securities laws. Cases

may also be referred to the Secretary for Justice for criminal prosecution. By contrast, OFTA performs all three functions under the competition provisions of the Telecommunications Ordinance. There is also the right of appeal to a specialist tribunal, the Telecommunications (Competition Provisions) Appeal Board. If the Government introduces sector-specific laws, we would recommend adoption of the OFTA model for civil anti-cartel offences as this is a more efficient approach.

We do not believe that there would be sufficient workload to justify a permanent auto-fuel sector regulator and if one were established, there is a risk that it could, in effect, create work for itself. Instead, any sector-specific regulation could provide for the appointment of an independent person for a fixed term (e.g. three to five years) to be available to act as the regulator on an 'as needs basis'. We consider that the following arrangements would be viable:

### **(I) Appointment of Auto-fuel Commissioner**

- The Secretary for Economic Development and Labour ('SEDL') or the Chief Executive ('CE') could appoint an Auto-fuel Commissioner ('AF Commissioner') to act in the following circumstances:
  - where there is reasonable cause to believe that a breach of the anti-cartel provisions may have been committed;
  - when the SEDL or CE considers it necessary to inquire whether anti-cartel provisions are being complied with;
  - when a merger (either by way of asset acquisition or share change of control) in the auto-fuel industry takes place and the AF Commissioner believes that the merger should be investigated to determine whether it would substantially lessen competition;
  - to undertake a periodic assessment of the competitiveness of the Hong Kong auto-fuel market at the request of the SEDL or CE.
- the AF Commissioner would be an independent person of legal background e.g., a retired high court judge or competition law expert;
- the AF Commissioner should be appropriately resourced with a secretariat and investigative team drawn from Government departments, law firms or overseas experts. During 'downtimes' when the AF Commissioner was not actively engaged on a project, EDLB could perform the limited secretariat functions required.

### **(II) Role and Powers of Auto-fuel Commissioner**

- In relation to anti-cartel provisions, the AF Commissioner could make decisions on whether to refer complaints to the Secretary for Justice after initial investigation (if criminal provisions are adopted). Civil adjudications would be conducted by the AF Commissioner (see below).
- When investigating alleged breaches of anti-cartel provisions, the AF Commissioner would have the power to compel the production of documents and information.

- Under the civil anti-cartel provisions, the AF Commissioner would have power to:
  - impose a fine;
  - require costs to be paid;
  - send a warning letter; or
  - recommend that criminal proceedings be commenced against company officers (if criminal provisions are introduced) and refer the matter to the Secretary for Justice.
- Any merger clearance rules could be modelled on section 7P of the Telecommunications Ordinance with the inclusion of provisions to cover asset acquisitions.
- The AF Commissioner would act in accordance with the principles of fair hearing and give written reasons for all decisions.

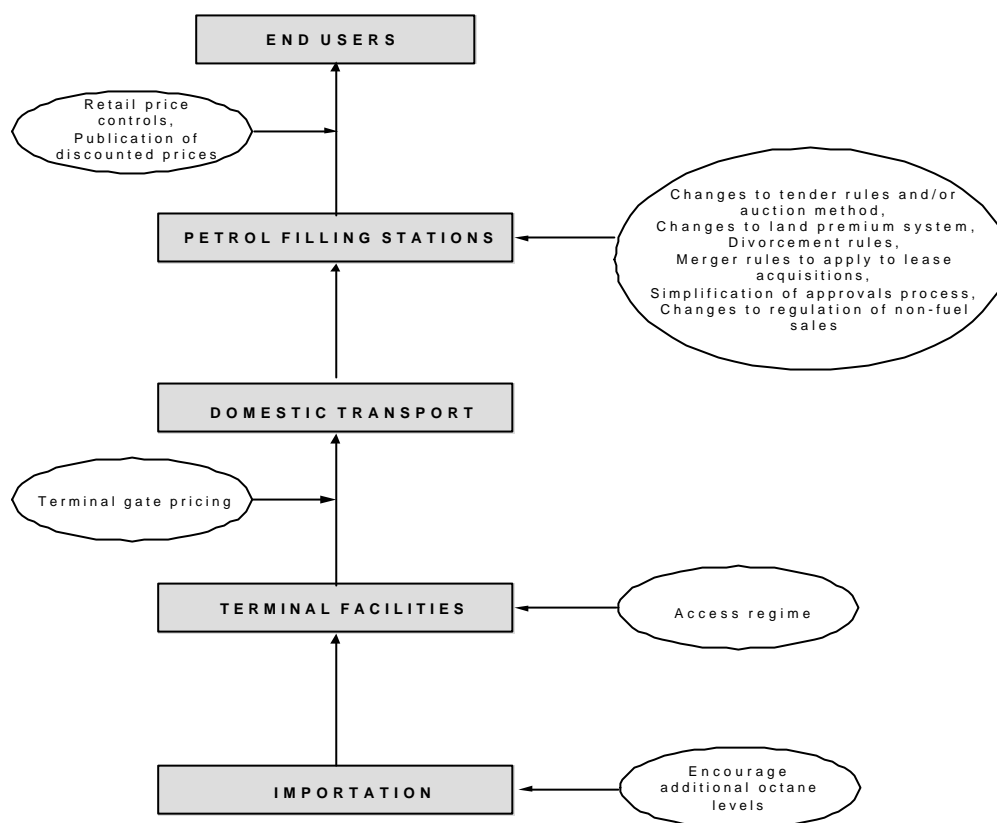
### **(III) Appeals from decision of AF Commissioner**

- Aggrieved persons would have a right of appeal against decisions, directions or orders of the AF Commissioner. As many of the market definition and competition principles are similar, the existing Telecommunications (Competition Provisions) Appeal Board (‘ Appeal Board’ ) could be used as a model.
- Matters of law would be determined by the Chairman of the Appeal Board, who would be a lawyer, or referred to the Court of Appeal for determination.
- Decisions of the Appeal Board would be final.

## **8.5 Options to Enhance Competition or Otherwise Reduce Auto-fuel Prices**

Additional regulatory measures can be broadly grouped depending on the point in the supply chain at which they are implemented.

Chart 21: Summary of Potential Regulatory Responses



### 8.5.1 Intervention at the End-User Level

#### (A) Retail Price Controls

Retail price caps seek to mimic the outcome of a competitive market by specifying a ceiling above which fuel may not be sold.

Price caps are difficult to design and carry significant risks of failure. As the ACCC has stated:<sup>112</sup>

*“Regulating retail prices could lead to average prices being higher than they otherwise would have been in the absence of price regulation. This may occur if firms have market power and the regulators allow for retail margins which may be higher than would be determined in a competitive marketplace. These margins would be particularly difficult to determine given differing cost structures across service stations, the extent and nature of services provided and the turnover from fuel sales and non-fuel products. ... If the price cap is set too low, operators may be driven out of business, lowering the degree of competition in the industry...”*

<sup>112</sup> Australian Competition and Consumer Commission (2001) “Reducing fuel price variability”, p77.

Studies have shown that Prince Edward Island in Canada, which has retail and wholesale price controls, has higher auto-fuel prices than elsewhere in Canada.<sup>113</sup>

There could be particular risks in introducing retail price controls in Hong Kong. A calculation of appropriate price caps would need to take into account the significant discounts offered by Hong Kong retailers since they represent the ‘real’ price, further complicating an already difficult task. If the cap did not take into account discounts, regulation might have the counterproductive effect of encouraging oil companies to abandon or reduce discounts. To the extent that discounts did decrease, it would be by no means certain that a price cap regime would provide an equivalent benefit to Hong Kong consumers.

Accordingly, we do not recommend introducing retail pricing controls.

## **(B) Publication of Discounted Prices**

Some interviewees suggested that competition might be enhanced if discounts were published because this would make it easier for consumers to compare prices. Oil companies could be required to provide discounted prices to a central body, such as the Consumer Council, for compilation and publication.

However, a discount publication scheme would be difficult to implement given there is no ‘standard’ discount offered by the oil companies. Some discounts are widely available while others are tailored to small groups or bespoke for each large user, such as the bus companies. Discounts are also negotiated individually with consolidators and publication could damage their businesses.

More importantly, the lack of transparency in discounts, as discussed above, actually reduces the opportunity and incentive for collusion or implicit price coordination between the oil companies and publication may, therefore, facilitate coordination.

Accordingly, we do not recommend requiring oil companies to publish or report discounted prices.

### **8.5.2 Intervention at the PFS Level**

Intervention at the PFS level is principally targeted at enhancing competition by encouraging new entry and/or expansion.

#### **(A) Site Allocation**

##### **(I) The impact of recent changes to the tender process**

While the PFS tender system is criticised as contributing to high auto-fuel prices through inflated land prices, it also provides the Hong Kong market with a unique advantage in reducing the impact of incumbency because PFS sites periodically come up for lease renewal. In other markets, the best PFS sites are ‘locked up’ by the incumbent operators because they or their landlords hold perpetual freehold title.

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<sup>113</sup> The Conference Board of Canada (2001) “The Final Fifteen Feet of Hose: The Canadian Gasoline Industry in the Year 2000”, p36.

The changes made in 2003 to the PFS tendering arrangements have been successful in encouraging the entry of two new competitors. In particular, the ‘super-bid’ arrangement assists new operators attempting to gain scale.<sup>114</sup>

The full effects of these policy initiatives may need further time to be realised, as the recent entrants develop their remaining sites. Approximately ten further sites come up for re-tender in 2007-8, presenting smaller players with the opportunity to expand their operations.

Some of the major oil companies criticised the ‘super-bid’ because it disadvantaged a tenderer wishing to bid for a single site, such as the current lessee seeking to retain its existing PFS site. The ‘super-bid’ is an economically justifiable policy since it allows a tenderer to make a multi-site bid based on economies of scope and scale which it can realise across those sites. Further, to the extent that it assists new entrants, it is a valid policy response to the concentrated nature of the Hong Kong market.

Accordingly, we recommend retention of the new tendering arrangements, including the ‘super-bid’. We recommend some improvements to the PFS tendering process below.

## **(II) Reducing land costs**

As our net margin model has shown, land costs are the largest single component of Hong Kong auto-fuel prices. A reduction in land costs may flow to consumers through reduced auto-fuel prices.

To the extent the Government wished to decrease land costs, one option would be to introduce zero land premiums. Zero land premiums for dedicated LPG sites were offered in conjunction with retail price controls to ensure that the savings realised by the retail suppliers were passed on to consumers. The LPG scheme is, in effect, a form of direct Government price control.

However, the LPG tendering arrangement was introduced for environmental reasons that would not extend to auto-fuel. In the course of developing the PFS tendering arrangements, this option was rejected because “such a proposal would have a number of implications including fairness to existing operators, whether their legal rights would be infringed and possible adverse impact on efforts to promote the use of auto-LPG”.<sup>115</sup> We agree with this assessment.

Another option is to consider whether changes in the PFS tender system might result in lower land premiums. The current tender process is conducted by way of sealed bid rather than an open auction. Confidential, ‘one shot’ tenders arguably result in higher prices than open auctions because bidders do not have information about the value that other bidders place on the site lot. The ‘super-bid’ arguably plays to this risk. A company wishing to lodge a super-bid must bid a price that exceeds what it believes other bidders would be prepared to pay, in aggregate, for each site on a standalone basis. Similarly, a bidder for an individual site will have to bid above the level which it expects a bidder lodging a ‘super-bid’ would be prepared

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<sup>114</sup> The ‘super-bid’ allows tenderers to bid for all PFS sites on offer, individual sites, or a combination of both.

<sup>115</sup> Energy Advisory Committee (2000) “Progress Report of the Competition Subcommittee on the Consumer Council’s “Energizing the Energy Market: Study of Motor Gasoline, Diesel and LPG Markets in Hong Kong”, EnAC Paper 10/2000.

to pay for the site. As there is no transparency of bids, these dynamics may work together to increase the prices paid in sealed tenders.

A multiple-round ascending auction, like the auction design used to sell 3G spectrum in Hong Kong,<sup>116</sup> would provide bidders with more information about what others are prepared to pay for a site, allowing them to adjust their bidding strategies in response, while retaining the positive features of the ‘super-bid’.

As part of the auction design:

- all PFS sites on offer would be auctioned simultaneously, with bidders able to bid on any PFS site, or any combination of PFS sites;
- bidding would be conducted over multiple rounds and the auction would close when there were no new bids on any of the PFS site lots in a round; and
- bidders could withdraw bids for individual PFS sites. If a bidder who wanted to acquire multiple PFS sites believed the bids for one PFS site in the combination of sites for which it was bidding had gone too high, the bidder could withdraw its bids for other PFS sites that it did not want other than as part of a combination of sites. This preserves the value of the ‘super-bid’ option.

There are a number of important caveats regarding any change to the PFS tender process:

- there is no guarantee that a multiple-round ascending auction will result in lower land premiums, and some of the early 3G auctions resulted in very high prices;
- a lower land premium shifts value from the Hong Kong Government as vendor to the oil companies as buyers and, subject to the next point, ultimately to some consumers. If the Government was prepared to reduce the revenue it earns from the auto-fuel industry in order to bring prices down, a much simpler approach would be to reduce auto-fuel duty;
- there is no guarantee that companies will pass any land premium savings on to consumers in the short run; and
- open auctions carry risks of collusion between bidders, which is already a material risk in the Hong Kong auto-fuel market given its concentrated nature. However, these types of auction can be designed to minimise the risk of collusion.

Some interviewees expressed the opinion that the notice period for upcoming tender opportunities (six weeks on the last occasion) is too short to properly construct a business case and assess commercial options. We recommend that the notice period be extended to a minimum of three months and, ideally, to six months.

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<sup>116</sup> The Office of the Telecommunications Authority issued an information memorandum on “Hong Kong Third Generation Mobile Services Licensing” in July 2001.



### **(III) Allocation of PFS sites to designated bidders**

An option to promote scale for existing small operators and new entrants is to exclude the oil majors from the next rounds of auctions. This option has previously been rejected as it would be seen as arbitrary and as inappropriate market intervention.<sup>117</sup>

An analogy to rules excluding incumbents from PFS tenders can be found in regulatory measures in the United States which limit the level of control which oil majors have over retail outlets. At least one study has found that these measures raise the price of auto-fuel, largely as a result of lost efficiencies.<sup>118</sup> The ACCC has also recommended against retail level controls on oil companies because they can be readily circumvented by the use of franchise and other vertical agreements.<sup>119</sup>

While we do not recommend excluding incumbents from the PFS tender process, there is a valid concern that as more sites fall due for re-tender, an oil company could:

- acquire multiple sites in a local area; or
- build up a much larger network of PFS sites across Hong Kong than any of its competitors.

We do not consider this likely in the foreseeable future, as there are at least six oil companies competing for sites. Additionally, even if an oil company were to acquire all PFS sites in a local area, given the size of Hong Kong and the quality of its roads, consumers could travel to adjacent areas to purchase auto-fuel. As such, consumers would continue to have choice of supplier, making the acquisition of multiple sites in one area a less attractive prospect for oil companies.

In any case, merger rules (as discussed above), whether general or sector-specific, can be an effective means of addressing site concentration issues. In a series of acquisitions, there is a point at which the acquisition of one site will be likely to substantially lessen competition. If that were the case in respect of any successful auction bid, and merger laws were in place, the merger laws would give rise to a divestiture remedy and the oil company would have to divest the relevant site, transferring it to an independent third party.

Accordingly, we do not recommend restricting who can bid for PFS sites.

### **(B) Reducing the level of PFS Regulation**

PFS lease terms prohibiting sub-leases for the operation of convenience stores and any third party advertising at a PFS site could be removed, subject to safety considerations. An expedited process for setting any associated increase in land premium could be put in place.

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<sup>117</sup> Energy Advisory Committee (2000) "Progress Report of the Competition Subcommittee on the Consumer Council's "Energizing the Energy Market: Study of Motor Gasoline, Diesel and LPG Markets in Hong Kong"", EnAC Paper 10/2000.

<sup>118</sup> See M Vita (2000), "Regulatory Restrictions on Vertical Integration and Control: The Competitive Impact of Gasoline Divorcement Policies" *Journal of Regulatory Economics* 18:3 217, p219: "divorcement policies raise the price of gasoline by about 2.6c per gallon".

<sup>119</sup> Australian Competition and Consumer Commission (1996), "Inquiry into the Petroleum Products Declaration", p43.

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.

The planning, environmental, fire and safety regulations which apply to PFS sites in Hong Kong are extensive. Entrants may have struggled to meet these requirements, as it is over two years since Sinopec and Chinaoil first entered the market, but their new sites are still not operational.<sup>120</sup> While it is difficult for us to gauge whether this regulation is stricter than needed for the unique, densely populated environment of Hong Kong, a more efficient, coordinated approval process would assist successful tenderers to establish their PFS operations more quickly.

Streamlined regulatory processes could allow allocated sites to become operational sooner, allowing the new entrants to increase their scale more quickly. Earlier operation also means consumers could benefit more quickly from competition in the local area, and could help reduce operators' costs by extending the operational life of a PFS site over which to recover the land premium.

For similar reasons, the process for conversion of sites to PFS use could also be improved. In particular, the Lands Department could set and publish timelines and provide for a clear escalation pathway if agreement on the land premium could not be reached with the site owner.

It has been suggested that the Government could increase competitive pressure by allowing 'mini-PFS' sites with two or three bowsers to be located in parking garages etc. However, Hong Kong's regulatory restrictions on 'mixed use' sites are strict<sup>121</sup> and potentially an additional land premium would have to be negotiated. Even if these barriers could be overcome, it is not clear that mini-PFS sites would be economically viable. As discussed above, the relatively small size of the existing 'full scale' PFS sites is already a contribution to higher per unit costs in Hong Kong. Authorising a significant increase in the number of PFS sites also would go against the global trend towards reducing the number of PFS sites serving a geographic area to realise scale economies, which can be an important consideration in a maturing market like Hong Kong. As discussed above, Hong Kong's PFS site tendering system allows a regular turnover in existing PFS sites and this is more likely to offer more feasible opportunities for operators to enter and expand than providing for mini-PFS sites.

The current ad hoc approach by the Government to the management of short-term three month rolling PFS leases<sup>122</sup> could also be streamlined to improve efficiency and reduce costs. Some of these short-term leases have been operating for a number of years with rent payable for each three month period assessed on the basis of recent land premiums.

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<sup>120</sup> The *Conditions of Sale* generally require a PFS site to be operational approximately within two years of the tender date.

<sup>121</sup> Hong Kong Planning Standards and Guidelines (1990), chapter 12, section 3. There are some PFS sites located under commercial buildings, such as in Wan Chai, but these were approved before the current mixed use restrictions were introduced.

<sup>122</sup> Including expired PFS leases waiting for inclusion in a bundled tender or where zoning issues have yet to be resolved.

### **8.5.3 Intervention at the Terminal Level**

Complaints have been made about the difficulties which non-vertically integrated operators face in negotiating terminal access with the four vertically integrated operators with facilities at Tsing Yi Island.

#### **(A) Terminal Storage Access Regime**

One option would be to establish a regulated access regime requiring companies with existing terminal facilities to provide third parties with access on fair terms, subject to capacity being available.

However, given the conditions of the Hong Kong market, improved access to terminal facilities would not necessarily reduce barriers to entry. New entrants would still have to secure a supply of auto-fuel on the world market, and transport that auto-fuel to Hong Kong. Shipping costs are highly sensitive to the size of the tanker used and, as a result, the smaller operators would continue to be at a cost disadvantage compared to the larger operators even if they had access to terminal space.

While spare terminal capacity may exist now or in the future with the Airport Authority's Permanent Aviation Fuel Facility coming on line, the prospect of two or more importers using the same terminal capacity raises questions about how importers would in a practical sense 'share' capacity. The co-mingling of product at a single facility raises complex questions about quality and liability. As a result, it is likely that physically separated unused capacity would be required if third parties were to have regulated access, i.e., a spare tank rather than spare space in a tank used to store an importer's own fuel.

Open access to terminal facilities has been suggested in other jurisdictions, although, as far as we are aware, this has not been implemented. The NZ Institute of Economic Research considered that terminal access might facilitate more wholesale activity, but it questioned whether small independent dealers would have the scale to import fuel at levels which would justify access as opposed to buying wholesale fuel from an importer.

Another option would be a common use facility, purpose built either by the Government or a third party, such as the Airport Authority is constructing for jet fuel. Locating an open access facility on vacant land next to the Airport Authority's own jet fuel facility may allow sharing of common infrastructure such as the jetty, which could reduce costs. However, this land has been designated for other uses and the location of an additional fuel facility is likely to attract strong opposition from neighbours. The problem also remains that small operators would not be able to realise scale in shipping auto-fuel.

Accordingly, we do not recommend introducing an access regime for terminal facilities.

#### **(B) Terminal Gate Pricing**

A 'terminal gate price' is the wholesale price for a bulk purchase from a fuel terminal. A regulated terminal gate price is based on an import price, plus cost to the terminal gantry, a return on terminal assets, and excise and tax.

The advantage of terminal gate pricing over physical access to terminal facilities is that terminal gate prices reflect the scale economies which the terminal owner (as importer) realises from being able to use large oil tankers to bring in its own fuel supplies, and effectively allows non-vertically integrated firms to share in the benefits of those scale economies.

Terminal gate pricing has been implemented in some Australian states. However, the ACCC has concluded that it is too early to reach a final conclusion on its competitive benefits. It cautioned that there were significant risks in setting a terminal gate price: if the benchmark is set too low, refiners will not sell any fuel under the arrangements, whereas if the benchmark is set too high, wholesalers and retailers will not buy any fuel.<sup>123</sup> The schemes in the Australian states of Western Australia and Victoria struggled to set an appropriate price, seriously undermining the effectiveness of the arrangements.

Another weakness of terminal gate pricing is the possibility that it could facilitate collusion by allowing competitors to monitor each other's benchmark prices.<sup>124</sup>

The non-vertically integrated oil companies, Sinopec and Chinaoil, are currently acquiring wholesale auto-fuel (either at the terminal gate or delivered to their PFS). We do not have detailed information on their wholesale purchasing arrangements, but both companies are likely to have higher product costs than the vertically integrated oil companies from which they are purchasing wholesale auto-fuel. As a result, it is likely that their margins are below the average PFS margins calculated in chapter 5. However, on the basis of our modelling, it appears that lack of scale in the downstream supply chain is more likely to be a bigger challenge for Sinopec and Chinaoil than the wholesale auto-fuel price.

There is a reasonable prospect that as Chinaoil and Sinopec's scale increases their countervailing leverage against their wholesale suppliers also will increase. Chinaoil and Sinopec then may be able to negotiate higher volume discounts or secure direct access to terminal capacity. In the LPG market, the non-vertically integrated operator, Hong Kong and China Gas, has significant market share and has been able to obtain terminal access.

Accordingly, weighing the risks and uneven record of terminal gate pricing overseas with the prospects for a market-based solution, we do not recommend introducing terminal gate pricing at this stage. However, as the terminal facilities potentially provide vertically integrated oil companies with leverage over downstream competition, we suggest that the Government continue to monitor potential competitive issues in wholesale supply. A future review could be carried out by the AF Commissioner on referral from the CE or SEDL, as discussed above.

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<sup>123</sup> Australian Competition and Consumer Commission (2001) "Reducing fuel price variability", p67.

<sup>124</sup> Australian Competition and Consumer Commission (1996) "Inquiry into the Petroleum Products Declaration", p124; NZ Institute of Economic Research (2002) "The decline of independent petrol retailing, rationalisation or predation? Report to the Ministry of Economic Development", p24.

#### **8.5.4 Encouraging Additional Octane Levels**

While product choice is an important element of competition, there would be considerable difficulties mandating by regulation that the oil companies supply a range of octane ratings. As noted in section 6.2.9, there is a reasonable argument that the size of PFS and the scale of the Hong Kong market makes it commercially unviable to sell both 95 RON and 98 RON auto-fuel.

Accordingly, we do not recommend requiring retailers to provide a wider choice of fuel types.

## 9. Study Conclusions

We have found no evidence to support the widely held perception that oil companies are colluding in the Hong Kong auto-fuel market.

Inquiries into auto-fuel retail prices in the United States, United Kingdom, Australia and Canada have reached similar conclusions.<sup>125</sup> These inquiries have tended to conclude that the inherent characteristics, complexity and opaqueness of the oil industry contribute to public misapprehensions about collusion amongst the oil companies. The Canadian Competition Bureau has commented:<sup>126</sup>

*“... the forces that drive gasoline prices are complex, involving international crude-oil inventories, national wholesale price discounting, and domestic retail competition ... the explanation by gasoline retailers of particular price hikes have not been convincing to consumers. Concern about unfair pricing and suspicion of collusion among producers and retailers have sometimes resulted.”*

Even so, we have concluded that there is room for improvement in the performance of the Hong Kong auto-fuel market. While the margins earned by the oil companies in the Hong Kong market are broadly in line with the United States and some European markets (once allowances are made for higher costs and lower non-fuel revenues in Hong Kong), it is also true that there are other markets in which consumers benefit from more vigorous price competition, particularly for petrol.

The two related structural features of the Hong Kong market which impair the degree of competition are the high level of concentration amongst the three largest operators, Shell, ExxonMobil and Chevron, and the lack of sufficient scale amongst the three smallest players, CRC, Chinaoil and Sinopec, to offer a significant competitive challenge.

We have found evidence that since the Consumer Council Report (1999), the Hong Kong auto-fuel market has become more competitive, with discounts becoming more widely available and oil company margins decreasing. There are prospects that, without any further Government intervention, the market will become more competitive. While Hong Kong's higher land prices contribute to higher retail prices, the Government land tendering system also provides Hong Kong with an important advantage in addressing incumbency because all operators have an opportunity to tender for PFS sites as leases expire.

However, we believe the development of competition could be further promoted by measures to reduce barriers to expansion by the smaller operators, such as streamlining the regulatory approval processes for PFS.

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<sup>125</sup> See: Federal Trade Commission (2005) “Gasoline Price Changes: The Dynamic of Supply, Demand and Competition”; The Conference Board of Canada (2001) “The Final Fifteen Feet of Hose: The Canadian Gasoline Industry in the Year 2000”; Australian Competition and Consumer Commission (2001) “Reducing fuel price variability”; United Kingdom Office of Fair Trading (1998) “Competition in the supply of petrol in the UK”.

<sup>126</sup> Canadian Competition Bureau (2000) “July 1999 Gasoline Price Increases – A Competition Bureau Examination Report”, p3.

Even with an improving competitive environment, collusion is likely to remain a risk. We have proposed preventive measures to protect competition from collusion and mergers which substantially lessen competition. Most of the comparable markets in which the three major oil companies operate have similar safeguards.

Finally, it is important to bear in mind the limits of what can be achieved in the Hong Kong market, particularly in terms of reducing prices. Government intervention cannot change the inherent features of the Hong Kong auto-fuel market, such as its overall lack of scale. Cross border sourcing of auto-fuel is likely to remain a feature of the market as long as Mainland China retail prices are materially below those prevailing in Hong Kong. Wider considerations also impact the Hong Kong auto-fuel market, including the deepening public concern over Hong Kong's air quality.

31 December 2005

## 10. Annexures

10.1 List of Interviewees

10.2 Margin Analysis: Assumptions

10.3 Terms of Reference



## 10.1 List of Interviewees

### Oil Sector

1. China Resources Petroleum (Group) Co., Ltd. and CRC Petrol Filling Station Co. Ltd.
2. Chinaoil (Hong Kong) Corporation Limited
3. Chevron Hong Kong Limited
4. ExxonMobil Hong Kong Limited
5. Shell Hong Kong Limited
6. Sinopec (Hong Kong) Limited

### Transport and Delivery Sector

1. AMS Public Transport Holdings Limited
2. Citybus Limited
3. H. K. Vehicle Transportation Association
4. Hong Kong Automobile Association
5. Hong Kong Container Tractor Owner Association Ltd.
6. Hong Kong Kowloon and New Territories Public & Maxicab Light Bus Merchants' United Association
7. Lok Ma Chau China-Hong Kong Freight Association
8. New World First Bus Services Limited
9. The Hong Kong Taxi and Public Light Bus Association Ltd.
10. The Kowloon Motor Bus Company (1933) Limited
11. TNT Express Worldwide (HK) Ltd.
12. UPS Parcel Delivery Service Ltd.

### Government and Related Organisations

1. Airport Authority, Hong Kong
2. Consumer Council
3. Customs and Excise Department
4. Electrical and Mechanical Services Department
5. Environmental Protection Department
6. Hong Kong Fire Services Department
7. Lands Department
8. Planning Department

### Universities

1. Dr Chow Chuen-ho, Larry, Director,  
The Hong Kong Energy Studies Centre, Hong Kong Baptist University
2. Prof Chong Tai-leung, Associate Professor,  
Department of Economics, Chinese University
3. Dr Li Kui Wai, Associate Professor,  
Department of Economics and Finance, City University
4. Prof V Paddy Padmanabhan, The INSEAD Chaired Professor of Marketing  
INSEAD, Singapore

**Others**

1. Federation of Hong Kong Industries
2. Hong Kong General Chamber of Commerce
3. Hutchison Whampoa Limited
4. Miriam Lau Kin Yee, Legislative Councillor, Transport Constituency
5. Noble Group Limited
6. Pioneer Dynamics Limited
7. The Hong Kong and China Gas Company Limited
8. Michael Tse, Consultant

## **10.2 Margin Analysis: Assumptions**

### **10.2.1 Hong Kong Margin Analysis**

As set out in section 6.1 we have constructed a model to provide a benchmark estimate of the margins being earned in the Hong Kong auto-fuel market by a typical retailer.

Given that in the majority of cases the oil company is responsible for setting the final retail price (either directly or via contractual recommendations which are always followed), we consider an analysis of margins across the entire supply chain is more indicative of the true level of profitability in the sector than an analysis focused solely on retail margins. Moreover, given that for many companies there is no separate ‘wholesale price’ for sales to retail outlets it would not be possible to undertake a margin calculation of retail activities only.

Many of the costs faced by auto-fuel retailers are fixed regardless of volumes. Accordingly, we have calculated margins on a per litre basis.

We have made two calculations of margins being earned by auto-fuel retailers in Hong Kong – the ‘gross’ margin and the ‘net’ margin. Both of these margins have been calculated on an annual basis for the year ending 30 June 2005, to smooth out any month by month fluctuations in margins.

The gross margin reflects the pump price minus discounts (to give the effective price paid per litre), minus taxes and minus product cost. The gross margin therefore reflects the per litre revenue stream the auto-fuel retailer is receiving from which it has to cover all of its costs after allowing for product costs. The net margin is calculated from this gross margin by subtracting land costs, labour costs, construction costs, terminal storage costs, distribution costs, other operating costs (including maintenance, utilities and insurance), government rent and rates and credit card commission.

The net margin calculated by our model is before the allocation of company overheads and before profits tax. Given the potential for variation between companies on how overhead costs are allocated (e.g. between Hong Kong and regional operations) and therefore their impact on retail activities, the comparison of margins between companies (and internationally) is more appropriately calculated before the allocation of overheads. Similarly, the calculations of margins after tax will be affected by the different tax treatments adopted by different companies.

We have made separate calculations of the gross and net margins for petrol and diesel sales. However, given that petrol and diesel are retailed from all PFS sites jointly, the majority of the cost assumptions are the same for both products. The differences in the calculations between the two products relate to prices, discounts and product costs. While industry sources have indicated that credit card commission costs are higher for petrol (since a higher percentage of petrol than diesel purchases are expected to be by credit card), this has not been confirmed by the oil companies. In theory it would be possible to allocate fixed costs differently between the two products. However, any such allocation would be arbitrary.

We have not attempted to allocate any of the fixed costs associated with auto-fuel retailing between standard unleaded petrol and premium, due to data limitations. However, given that premium sales account for only approximately 10% of total petrol sales, we do not think that this has a significant impact on our analysis. Allocating a portion of the fixed costs to premium sales would increase the reported margins.

A number of PFS sites also retail LPG, alongside petrol and diesel.<sup>127</sup> There are increased site costs associated with retailing LPG, in relation to the additional equipment that has to be installed and the associated safety requirements. However, for those sites that have converted so as to also supply LPG, their leases have been extended (or are currently in the process of being extended) without payment of a further premium, in order to compensate them for the costs of conversion. We have assumed that the net impact of the cost of site conversion and the extension of the lease is zero, consistent with the policy intention.

In relation to other fixed costs that are shared with petrol and diesel, it seems reasonable to assume that retailing LPG does not result in any incremental increase in costs for labour, which is the next most significant operating cost. Other costs associated with auto-LPG (such as costs of terminal storage and distribution) will be incurred separately to the costs for petrol and diesel and will be recovered via the LPG price.

Overall we have taken the view that the retailing of auto-LPG will not significantly affect the overall fixed costs associated with retailing petrol and diesel and that, as a result, throughput of LPG sales can be excluded from the margin calculation.

### **10.2.2 Data Sources and Assumptions for International Margin Analysis**

Tables 12 and 13 below report the components of gross margin for the international comparison cities as depicted in Charts 10 and 11 in section 6.1.3 of the main report.

It is important to note that as the estimated margins are small in dollar terms. Relatively minor changes in the input assumptions may have a significant impact on the percentage margin.

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<sup>127</sup> 38 of the 173 PFS sites in Hong Kong also retail LPG (i.e., 22% of sites).

Table 12: Petrol Gross Margin Analysis for Hong Kong and International Comparisons

	Hong Kong	Singapore	Tokyo	Seoul	Sydney	Hawaii	Los Angeles	Seattle	New York	London	Paris	Amsterdam	Toronto
Octane	98	92	96	91	91	91	91	91	91	95	95	95	91
Retail price	13.08 (25 Oct 2005)	8.19 (14 Oct 2005)	9.12 (October 2005)	11.29 (October 2005)	7.67 (September 2005)	6.37 (week ending 23 Oct)	5.80 (week ending 23 Oct)	5.59 (week ending 23 Oct)	5.46 (week ending 23 Oct)	12.98 (week ending 23 Oct)	12.03 (October 2005)	13.43 (Oct 2005 est)	5.82 (17 Oct 2005)
Typical discounts	0.93	0.90	0.20	0.30	0.24	0.10	0.09	0.08	0.08	0.13	0.04	0.08	n/a
Price after discounts	12.15	7.29	8.91	10.99	7.43	6.37	5.71	5.51	5.38	12.85	12.00	13.35	5.82
Tax and excise/duty	6.06	2.05	4.24	6.52	2.93	1.05	1.18	0.98	1.06	8.37	7.47	8.43	2.00
Product cost	4.00 (October 2005)	3.48 (October 2005)	3.37 (October 2005 est)	4.13 (October 2005)	4.16 (September 2005)	4.52 (week ending 23 Oct-est)	4.00 (week ending 23 Oct-est)	4.04 (week ending 23 Oct-est)	3.56 (week ending 23 Oct-est)	3.94 (week ending 23 Oct-est)	3.75 (October 2005)	3.75 (October 2005)	3.51 (week ending 25 Oct)
Gross margin	2.09	1.76	1.30	0.34	0.36	0.8	0.53	0.49	0.75	0.55	0.79	1.18	0.31
Land costs	1.02	0.65	0.50	n/a	0.13	0.15	0.02	0.03	0.03	0.17	0.12	0.08	0.00
Margin after land	1.07	1.11	0.80	0.34	0.23	0.65	0.51	0.45	0.72	0.39	0.66	1.10	0.31
Margin as a % of retail price ex-duty	15.2%	18.1%	16.4%	7.1%	4.9%	12.2%	11.1%	9.8%	16.3%	8.3%	14.5%	22.3%	8.0%

Table 13: Diesel Gross Margin Analysis for Hong Kong and International Comparisons

	Hong Kong	Singapore	Tokyo	Seoul	Sydney	Hawaii	Los Angeles	Seattle	New York	London	Paris	Amsterdam
Sulphur	50	500	50	430	500	500	50	500	500	50	50	50
Retail price	8.27 (25 Oct 2005)	5.47 (14 Oct 2005)	7.42 (October 2005)	8.87 (October 2005)	7.70 (27 Oct 2005)	5.26 (1 Dec 2004)	4.67 (1 Dec 2004)	4.59 (1 Dec 2004)	4.94 (1 Dec 2004)	13.32 (week ending 23 Oct)	10.66 (October 2005)	10.51 (Oct 2005 est)
Typical discounts	1.45	0.60	0.20	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Price after discounts	6.82	4.87	7.21	8.87	7.70	5.26	4.67	4.59	4.94	13.32	10.66	10.51
Tax and excise/duty	1.11	0.23	2.68	4.14	2.93	1.03	1.24	0.99	1.30	8.43	5.72	5.13
Product cost	3.95 (October 2005)	3.78 (October 2005)	3.66 (October 2005 est)	4.13 (October 2005)	4.18 (October 2005)	2.54 (1 Dec 2004)	2.66 (1 Dec 2004)	2.54 (1 Dec 2004)	2.81 (1 Dec 2004)	4.21 (week ending 23 Oct est)	4.36 (October 2005)	4.28 (October 2005)
Gross margin	1.76	0.85	0.88	0.59	0.58	1.69	0.76	1.06	0.83	0.68	0.58	1.10
Land costs	1.02	0.65	0.50	n/a	0.13	0.15	0.02	0.03	0.03	0.17	0.12	0.08
Margin after land	<b>0.74</b>	<b>0.20</b>	<b>0.38</b>	<b>0.59</b>	<b>0.45</b>	<b>1.54</b>	<b>0.74</b>	<b>1.03</b>	<b>0.80</b>	<b>0.52</b>	<b>0.45</b>	<b>1.01</b>
Margin as a % of retail price ex-duty	10.3%	3.9%	7.9%	12.5%	9.5%	36.4%	21.7%	28.6%	22.0%	10.5%	9.2%	18.8%

## (A) Pump Prices

We have used published pump prices (before discounts) from October for each city in the analysis.<sup>128</sup> In order to account for fluctuations in pump price we have averaged prices over a week or a month (depending on data availability).

Hong Kong pump prices for petrol and diesel are based on prices shown on price boards on 25 October 2005. As prices in Hong Kong tend to move infrequently and are the same across all regions of the city, this represents a good estimate of the average pump price.

Pump prices in Singapore for both petrol and diesel are based on information provided by the consumer website PetrolWatch<sup>129</sup> and media releases published on the website of ExxonMobil, Singapore.<sup>130</sup> The prices were for 14 October 2005. As with Hong Kong, infrequent pump price movements and no regional variation means that these prices are a good representation of the city average.

Prices at the pump for diesel and petrol in Tokyo are averages for October, obtained from the Oil Information Centre website.<sup>131</sup>

Retail prices in Seoul have been obtained from the Korea Petroleum Association's website,<sup>132</sup> for the first three weeks of October. These are national averages, rather than city-specific.

Sydney petrol pump prices have been calculated using the average price for September as reported by Chevron Australia.<sup>133</sup> Diesel prices are based on a sample of pump prices for Sydney petrol stations from consumer website MotorMouth.<sup>134</sup> This is likely to underestimate diesel pump prices as MotorMouth reports the lowest prices available, rather than averages.

Petrol pump prices in Los Angeles, Seattle and New York are based on information published by the Energy Information Administration ('EIA')<sup>135</sup> for the week ending 24 October 2005. Petrol pump prices for Hawaii were obtained from consumer website GasBuddy<sup>136</sup> for the same week. Comprehensive information on recent pump prices for diesel in the United States cities has been difficult to obtain. As a result we have taken prices as at 1 December 2004, published by petroleum price information company OPIS, and calculated the gross margin for diesel on this basis. The EIA publishes highly disaggregated information about diesel prices which suggests that the average retail price of diesel in California and on the West Coast has increased by almost US\$1 per gallon (or 45%) since December 2004. Prices on the Central Atlantic coast have increased by US\$0.75 (or 34%) over the same period.

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<sup>128</sup> The exception is diesel prices for the United States cities, where reliable current information has been difficult to obtain. We have therefore used prices from December 2004 and calculated the gross margin on this basis.

<sup>129</sup> <http://www.petrolwatch.com.sg>

<sup>130</sup> [http://www.exxonmobil.com.sg/AP-English/News/SG\\_NewsRelease.asp](http://www.exxonmobil.com.sg/AP-English/News/SG_NewsRelease.asp)

<sup>131</sup> <http://oil-info.ieej.or.jp>

<sup>132</sup> <http://www.oil.or.kr>

<sup>133</sup> [http://www.caltex.com.au/pricing\\_his.asp](http://www.caltex.com.au/pricing_his.asp)

<sup>134</sup> <http://www.motormouth.com.au>

<sup>135</sup> <http://www.eia.doe.gov>

<sup>136</sup> <http://www.gasbuddy.com>

Toronto petrol retail prices have been provided by management consulting company MJ Ervin,<sup>137</sup> who collect extensive data on the Canadian auto-fuel retail market. These prices are a Toronto average for the week ending 25 October 2005. We have not estimated a gross margin for Toronto retail diesel sales due to lack of data.

Retail prices in London have been collected by fuel price information provider Catalist,<sup>138</sup> for the week ending 23 October 2005.

Average retail prices for the whole of France are reported by the Union Française des Industries Pétrolières ('UFIP').<sup>139</sup> We have used the averages over the first two weeks of October in our gross margin analysis. These are likely to underestimate retail prices in Paris, as news reports indicate that the average pump prices for both petrol and diesel in Paris may be as much as €0.13 higher than the national average.

Recent retail prices for Amsterdam are not available. However, Statistics Netherlands publishes countrywide average prices for 2004 in their CBS Yearbook 2005. Current retail prices have been estimated by calculating the gross margin for 2004 and adding this to current product costs and taxes.

## **(B) Discounts**

Typical discounts in Hong Kong are assumed to be HK\$0.93/litre for petrol and HK\$1.45/litre for diesel, based on oil company data.

Discounts in Singapore are assumed to be 11% for both petrol and diesel. ExxonMobil's website reports that 6% discounts are obtained directly onsite, with no qualifications, while an additional 4% can be obtained by joining a free rewards programme. A further 1% is possible with credit card tie-ins.<sup>140</sup> Similar deals are available from other oil companies, based on information on PetrolWatch's website, with discounts of 1-4% from credit card tie-ins and loyalty programs.<sup>141</sup> We have assumed an 11% discount for both petrol and diesel, with a 100% take-up, given that the discounts are obtainable with little or no qualifications. The fact that prices are reported after discounts by PetrolWatch is an indication that these discounts are close to universally available.

Discount information for Korea has been obtained from oil company websites. Loyalty programmes provide around a 2-3% discount on petrol purchases. Credit card discounts can be as much as 3-4% for branded credit cards. Petrol cards typically give discounts of 40-50 won per litre, or about 3%. Given the large variety of discounts available, we have assumed a discount of 40 won on petrol available to all customers. It is not clear that these discounts are available on diesel and so we have not estimated any discount for diesel.

In Japan, discounts in the order of JPY1-2 per litre are available with credit card tie-ins. Prepaid fuel cards offer JPY3 per litre discounts, while paying with cash attracts discounts of

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<sup>137</sup> [http://www.mjervin.com/WPPS\\_Public.htm](http://www.mjervin.com/WPPS_Public.htm)

<sup>138</sup> <http://www.catalist.com>

<sup>139</sup> [http://www.ufip.fr/ufiptest/files/pdf\\_fiches\\_documentaires/releve\\_des\\_prix\\_et\\_cotations/relevés\\_prix\\_et\\_cotations.pdf](http://www.ufip.fr/ufiptest/files/pdf_fiches_documentaires/releve_des_prix_et_cotations/relevés_prix_et_cotations.pdf)

<sup>140</sup> [http://www.exxonmobil.com.sg/AP-English/News/sg\\_news\\_pump\\_price\\_decrease\\_260905.asp](http://www.exxonmobil.com.sg/AP-English/News/sg_news_pump_price_decrease_260905.asp)

<sup>141</sup> <http://www.petrolwatch.com.sg/discounts.php>



between JPY1-5 per litre. Given that these discounts cover almost all payment options, we have assumed that all customers receive an average discount of JPY3 per litre on both petrol and diesel.

Major Australian supermarkets provide vouchers entitling the holder to an A\$0.04 per litre discount on petrol at specific petrol stations when spending above a certain amount. Credit card tie-ins offer further discount opportunities of up to A\$0.04 per litre. Given that some customers may not be able to access any of these discounts, while others can use both, it seems reasonable to assume an average discount on petrol of A\$0.04 per litre for all customers. Similar schemes apply, but with greater qualifications, for diesel. Given the uncertainty about the level of diesel discounts, we have not included these in our analysis. The margin reported for diesel for Sydney may therefore be an overestimate.

Typical rebates for petrol purchases via some credit cards in the United States are 3%. Alternatively, discounts of between 1-5% may be available with cash purchases in some locations. Supermarkets offer vouchers of between US\$0.03 to US\$0.10 per gallon (around 1.5-3.5% of current retail prices) for spending above a certain level, although such schemes do not appear to be as widespread as in other markets. Since the rebates cover two common payment options and supermarket vouchers may be additional to these, it seems reasonable to assume a 3% discount for petrol. However, given that the availability of discounts appears less widespread in the United States, we have assumed only a 50% take-up rate.

In the United States, individuals with diesel cars almost always pay the full retail price. Commercial fleets do typically negotiate some form of discount for diesel purchases, via the use of fleet cards. However, these customers would be most likely to use truck stops rather than urban retail sites. We have been unable to find robust information on the typical size of diesel discounts available at retail stations, and so we have not incorporated an estimate in our analysis. However, we expect that any discounts offered in urban areas would not be large.

In Europe, petrol retailers (both supermarkets and the main oil companies) employ loyalty card schemes. The rewards offered by these schemes sometimes relate to direct discounts on fuel or fuel vouchers. In other cases customers collect 'points' that they can redeem for gifts. In the United Kingdom, discount schemes are offered by the large supermarket operators (Tesco, Sainsbury and Morrisons) and also by BP, Shell and Total. Esso has no regular discount scheme. Typical discounts are around 1% of the pump price.<sup>142</sup> Similar schemes in France and the Netherlands offer 0.3% and 0.7% discounts respectively.<sup>143</sup> We have assumed a 100% take-up rate for these discounts, in the absence of robust information on the proportion of customers receiving discounts. However, we consider that this is likely to be an overestimate (not all retailers have loyalty schemes), and as a result petrol margins for these cities may be underestimated.

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<sup>142</sup> For Tesco a STG1.50 discount is available for a purchase of STG150 (<http://www.tesco.com/clubcard>); Sainsbury offers a discount of STG2.50 for a purchase of STG250 (<http://www.nectar.com>); Shell offers a discount of STG5 for a purchase of 1,000 litres (<http://www.shellpluspoints.com>).

<sup>143</sup> See for example: <http://www.total.fr>; [www.shell.com/home/Framework?siteId=nl-nl&FC2=/nl-l/html/iwgen/leftnav/s/zzz\\_lhn4\\_3\\_0.html&FC3=/nl-nl/html/iwgen/shell\\_for\\_motorists/sparen/cadeaugids\\_03191522.html](http://www.shell.com/home/Framework?siteId=nl-nl&FC2=/nl-l/html/iwgen/leftnav/s/zzz_lhn4_3_0.html&FC3=/nl-nl/html/iwgen/shell_for_motorists/sparen/cadeaugids_03191522.html)

We were not able to find comprehensive public information on discounts offered to diesel customers in these markets, due to the fragmented and opaque nature of the market. In all three cities, the major retailers plus specialised fuel card agents offer card schemes to business diesel customers.<sup>144</sup> These schemes typically offer a periodically fixed price (based on a formula), with individual customers receiving a discount off that price, which is individually negotiated and usually subject to volume. In the United Kingdom, the discounts can be up to 3 pence off the pump price (around 3%). However, we were not able to obtain comprehensive information on the typical discounts received or the uptake of such schemes, and so have not incorporated discounts for diesel into our analysis. This means that diesel margins in the European cities are likely to be overestimated.

It should be noted that we have assumed that all discounts available via credit card are funded by the oil company, rather than by the credit card company. For some cities (including cities in the United States) this may under-estimate the margin calculated, since the cost of the discount may be shared with the credit card company, or even allocated in full to them. For example, we understand that in the United States in circumstances where discounts are available via credit card schemes, the credit card company may forgo its usual ‘interchange fee’ for these purchases, resulting in the discount reflecting reduced costs for the oil company in this instance.

We have no information about petrol discount schemes in Canada, and have therefore not included any discounts for Toronto in our margin analysis. Again, this means that the gross petrol margins shown for Toronto are likely to be over-estimated.

### **(C) Product Costs**

In general, we have attempted to use wholesale prices that include terminal storage costs in order for a good comparison to be made with Hong Kong. For the most part, we have achieved this aim, using rack prices for the United States cities and Toronto, and wholesale terminal prices for Australia and Singapore. For Tokyo we are using imported prices of auto-fuels, which are unlikely to account for terminal storage. The French and Netherlands product costs use Rotterdam wholesale prices, which include terminal storage in the Netherlands but not intermediate storage in France.

Hong Kong product costs use import data collected by the Census and Statistics Department, for October 2005. As the Census and Statistics Department data includes both regular and premium petrol fuel, the cost of regular 98 octane fuel is extracted by assuming a cost difference of HK\$0.20 between the grades. This figure was provided by industry sources.

Product costs in Singapore use the series for Bloomberg Singapore 92 octane petrol and averaged over the first half of October to reduce the effect of wholesale price variability. For diesel we have based cost on 0.05% sulphur diesel ExxonMobil refinery prices as reported by Platts.

Product costs in Japan were estimated using import statistics of refined petroleum products for August 2005, which were extrapolated to October 2005 on the basis of retail prices at that

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<sup>144</sup> For example: MF Oils and Bayford fuel card agents in the United Kingdom; Total GR card scheme, BP Plus Routex France in France; Texeco and Total Netherlands in the Netherlands.

date with constant gross margins. These data were obtained from the Japanese Ministry of Finance.<sup>145</sup>

Ex-refinery prices have been used as product costs for South Korea. These are reported on the Korea Petroleum Association's website for the first three weeks of October. Korean product costs are significantly higher than those of neighbouring markets, in part because the import of crude oil is taxed at 1% of import price, with an additional fixed charge of 14 won per litre.

Sydney product costs for petrol and diesel use data series obtained from Platts Singapore for landed prices of 95 octane unleaded petrol and 50ppm sulphur diesel respectively. Although the octane rating of regular petrol in Australia is 91, the ACCC uses 95 octane petrol for import parity calculations to adjust for the higher environmental standards in Australia. The September average of the petrol series was used for product costs, while the October average was used for diesel, to conform to pump price data availability.

Product costs for Hawaii, Los Angeles, Seattle and New York were obtained from OPIS. Rack prices (or prices charged for taking a truckload of fuel from a terminal) have been used as product costs. Since the rack price series is only available up to December 2004, current product costs for petrol have been estimated on the basis of the change in retail prices and taxes over the intervening period. This has not been possible for diesel as current retail price information for the surveyed cities is not readily available, so we have continued to use 2004 data.

Toronto product costs for petrol have been provided by MJ Ervin. The product cost has been calculated by adding the cost of Canadian crude and the refining margins for December 2004 and projecting these forward to October 2005 assuming constant gross margins. We have been unable to estimate product costs for diesel, and have not included a gross margin calculation for diesel for Toronto.

We have been unable to find reliable product cost estimates for the United Kingdom. However, average retailing gross margins are well publicised and we have combined these with the retail prices and taxes to estimate product costs. The Euromonitor report and Oil Price Assessments Limited ('OPAL') both estimate the gross margin at about five pence.<sup>146</sup> We have assumed that any discounts offered reduce this margin.

Product costs in France are based on the average wholesale prices in Rotterdam of octane 95 unleaded and 50ppm diesel for the first two weeks of October 2005. These data are available from the UFIP. As such these costs do not include transport to France and are likely to underestimate total product costs for French retail stations. We have used the same prices as product costs for the Netherlands.

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<sup>145</sup> <http://www.mof.go.jp/>

<sup>146</sup> [http://www.exxonmobil.co.uk/UK-English/Newsroom/UK\\_NR\\_NR\\_NewsReleasesAll\\_ukpia\\_240105.asp](http://www.exxonmobil.co.uk/UK-English/Newsroom/UK_NR_NR_NewsReleasesAll_ukpia_240105.asp)

## (D) Taxes and Duties

Excise duties in Hong Kong are HK\$6.06 per litre for petrol and HK\$1.11 per litre for ultra-low sulphur diesel. These figures were obtained from the Customs and Excise Department.

Excise duties on petrol in Singapore are S\$0.37 per litre for 92 octane regular. There are no consumption duties on diesel. Singapore has a GST of 5%. These figures were obtained from the Ministry of Finance.<sup>147</sup>

In Japan, tariffs are applied to imported crude oil at JPY0.17 per litre, and an 'Oil Coal Tax' of JPY2.04 per litre is added to this. The basic excise on petrol is JPY53.8 per litre and JPY32.1 per litre on diesel. A consumption tax of 5% is applied to all retail sales. These figures were obtained from the Petroleum Association of Japan.<sup>148</sup>

South Korea has a large number of excise duties and taxes on petrol and diesel at the wholesale and retail levels. The basic tax is the 'transportation tax', levied at 535 won per litre for petrol and 323 won per litre for diesel. On top of these are 'education tax' and local 'motor fuel tax', charged at 15% and 24% of transportation tax respectively. A VAT of 10% also applies to the retail price. These figures were obtained from the Korea Petroleum Association.

Sales of petrol and diesel in Australia attract an excise of A\$0.381 per litre. A GST of 10% is also applied. These figures were reported on the Chevron Australia website.

The United States Government sets a federal excise of US\$0.184 per gallon on the sale of petrol and US\$0.244 per gallon on the sale of diesel. States and local districts can charge their own excise and sales taxes and these are often difficult to find for specific areas. Fixed and proportion taxes have been estimated from the OPIS data and extrapolated forward on the basis of retail prices to predict current levels of taxation.

Canada charges a federal excise of C\$0.10 per litre, and C\$0.147 local excise is charged in Toronto. A local GST of 10% is also applied. This information was obtained from MJ Ervin.

Excise duties in the United Kingdom amount to £0.471 per litre for both petrol and ultra-low sulphur diesel. A VAT of 17.5% also applies. These were reported by the Energy Institute in their 2005 retail marketing survey.

French excise duties are €0.589 per litre for petrol and €0.417 per litre on diesel. A VAT of 19.6% is charged on the retail price of both fuels. These figures were obtained from the UFIP.

Dutch excise taxes as at October 2005 were €0.67 per litre for petrol and €0.37 for ultra-low sulphur diesel. A VAT of 19% applies to the sale of auto-fuel.<sup>149</sup>

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<sup>147</sup> [http://www.mof.gov.sg/budget\\_2003/budget\\_speech/annex1.html](http://www.mof.gov.sg/budget_2003/budget_speech/annex1.html)

<sup>148</sup> <http://www.paj.gr.jp>

<sup>149</sup> [http://www.minfin.nl/default.asp?CMS\\_ITEM=MFCR2C007E07656BC11D5BFDC00104B3FBE32](http://www.minfin.nl/default.asp?CMS_ITEM=MFCR2C007E07656BC11D5BFDC00104B3FBE32)

## (E) Land Costs

Land premiums in Hong Kong are estimated from the results of the four most recent tenders under the new tendering arrangements, using data obtained from the Lands Department. The average premium is annualised over 21 years according to the yield on 10-year exchange fund notes reported by the Hong Kong Monetary Authority on 18 October 2005.<sup>150</sup> Average station throughput has been estimated using non-confidential industry sources and import information from the Census and Statistics Department.

Singapore has a very similar land tender arrangement to Hong Kong, with sites under 30 year leases. Land costs in Singapore are estimated from land premium data since 2002, available from the Housing and Development Board Website.<sup>151</sup> We note that not all sites appear to be sold via tender but have been unable to find further details. The average real premium was calculated and annualised over the 30-year length of the lease according to the yields of 10-year Singapore Government Securities.<sup>152</sup> We have been unable to find a throughput value for Singapore. We have therefore used a value of 5 million litres per year, on the basis that throughput in Singapore may be expected to be below that in Hong Kong, given Singapore's similar level of car ownership, lower population and greater number of petrol stations.

The average area of a service station in Japan is 751m<sup>2</sup>.<sup>153</sup> Average land costs in the Tokyo urban area amount to JPY1,359 million per m<sup>2</sup>.<sup>154</sup> Since petrol station land is predominantly owned, rather than leased, in Japan, this has been amortised over an infinite horizon at the yield rate on 10-year Japanese Government Bonds.<sup>155</sup> Average Japanese station throughput was reported in a 2004 investigation conducted by the Japanese Institute of Energy Economics and includes retail sales of kerosene.

Land costs in Sydney are based on the New South Wales Government's valuation of land for a sample of Sydney petrol stations. The typical figure was annualised over an infinite horizon at the yield rate of September 10-year Australian Government Bonds.<sup>156</sup> The throughput value per site used has been estimated from Chevron Australia's 2004 annual report, but is Australia-wide. It may underestimate average throughput of a typical Sydney petrol station.

For Hawaii and Los Angeles, land costs and throughputs are based on the estimates provided in the 2003 Stillwater report, which was prepared for the Hawaiian State Government.<sup>157</sup> Land costs have been updated for 2004/5 on the basis of changes in CPI. We have also used the Stillwater estimate of turnover for Los Angeles as a proxy for turnovers in New York and Seattle. Land costs for New York and Seattle are based on more general estimates for average urban petrol stations in the United States from the 2005 NACS State of the Industry

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<sup>150</sup> [http://www.info.gov.hk/hkma/eng/press/category/efbn/attach/20051018\\_FIXINGS.xls](http://www.info.gov.hk/hkma/eng/press/category/efbn/attach/20051018_FIXINGS.xls)

<sup>151</sup> <http://www5.hdb.gov.sg/aa15/aa15001p.nsf/PLDFsLand?OpenFrameSet>

<sup>152</sup> [http://www.sgs.gov.sg/data/data\\_hprices.html](http://www.sgs.gov.sg/data/data_hprices.html)

<sup>153</sup> *Gas Station Management and Investigation of Structural Improvement*, IEE Japan, March 2004

<sup>154</sup> According to information obtained from the Land and Water Bureau and the Ministry of Land, Infrastructure and Transport.

<sup>155</sup> <http://www.mof.go.jp/english/jgb-e.htm>

<sup>156</sup> <http://www.rba.gov.au/Statistics/Bulletin/F02hist.xls>

<sup>157</sup> <http://www.hawaii.gov/dbedt/ert/act77/act77part1.html>

survey. All of these land costs have been amortised over an infinite horizon using the yield rate on recent sales of 10-year United States Treasury Bonds.<sup>158</sup>

Land costs for London, Paris and Amsterdam have been estimated using information in the 2000 Supermarket inquiry of the United Kingdom Competition Commission. This provided an estimate of typical land costs per m<sup>2</sup> for supermarkets in these cities, which have been updated for 2004/5 on the basis of changes in CPI. Assuming costs per m<sup>2</sup> for petrol stations to be similar to those of supermarkets and assuming an average petrol station area of 2,000m<sup>2</sup> on the basis of values found for other markets, total land costs were amortised over an infinite horizon using the yield on 10-year Government Bonds for London<sup>159</sup> and Amsterdam,<sup>160</sup> and the yield on 5-year French Treasury Bills<sup>161</sup> for Paris, since 10-year bills were not available. Euromonitor provided average 2002 station turnover for the United Kingdom – figures specific to London were not available. Average station throughput for the Ile-de-France region around Paris has been estimated on the basis of figures published by the regional body of the French Ministry of Economy, Finance and Industry. Turnover for the Netherlands was based on the estimates of OPAL for the fourth quarter of 2002.

## **(F) Non-fuel**

Non-confidential industry sources indicate that a typical Hong Kong petrol station makes an annual profit of HK\$240,000 on non-fuel items, adding HK\$0.04 per litre to gross profit on fuels.

The 2005 NPN Market Facts report estimated that merchandise accounted for 33.5% of total sales at United States petrol stations in 2004. Margins are close to 30% on these products – consequently profits on non-fuel items form an important component of profit for the average station. Using information from the Stillwater report, we calculate that this income may add about HK\$0.22 per litre to gross profit margins on fuel in the large Mainland United States cities. In Hawaii, where turnover of fuel is much lower, the impact of non-fuel income may be doubled.

Data from the 2002 Euromonitor reports has been used to estimate turnover and non-fuel sales. Singapore, Sydney, London and Amsterdam were found to have margins on non-fuel sales in the range of HK\$0.30 per litre. Seoul was the only city surveyed where non-fuel income was found to be lower than in Hong Kong. To calculate gross profits on non-fuel sales we have assumed a margin of 20%, which is consistent with Euromonitor's report for the United Kingdom. Since non-fuel retailing is a growing source of revenue in most of the cities surveyed and turnover has also increased over time, current non-fuel income may have grown considerably since those reports were published.

To assess the overall profitability of a retail site, we have added the non-fuel margin to the average gross margin on fuels. Calculation of an average gross margin on fuels requires data on the proportions of petrol and diesel sold from retail outlets. For Hong Kong, this ratio is

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<sup>158</sup> <http://www.publicdebt.treas.gov/AI/OFNtebnd>

<sup>159</sup> <http://213.225.136.206/mfsd/iadb/Index.asp?first=yes&SectionRequired=I&HideNums=-1&ExtraInfo=true&Travel=NIx>

<sup>160</sup> <http://www.statistics.dnb.nl/index.cgi?lang=uk&todo=Rentes>

<sup>161</sup> [http://www.banque-france.fr/gb/poli\\_mone/taux/html/page4.htm](http://www.banque-france.fr/gb/poli_mone/taux/html/page4.htm)

based on the Consultancy Team's own estimates of petrol and diesel sales. The figure for Tokyo was obtained from an Institute of Energy Economics report into the Japanese retail market.<sup>162</sup> Proportions for the United States were calculated using consumption data from the EIA website.<sup>163</sup> For Sydney, London, Paris and Amsterdam the appropriate ratio was taken from Snapdata reports on retail auto-fuel markets.<sup>164</sup> We were unable to find information for Singapore and Seoul, so for these locations we have used the proportions found in Hong Kong and Tokyo respectively.

Table 14 below shows the calculation of non-fuel income as depicted in Chart 12 in section 6.1.3 of the main report.

### 10.2.3 Labour costs

Available information indicates that hourly wages for PFS attendants in Hong Kong may be in the region of HK\$35 per hour.

Average hourly wages for cashiers in the United States are HK\$94, HK\$75 and HK\$102 in Los Angeles, New York and Seattle respectively, using current exchange rates. Minimum hourly wages for these cities are HK\$52, HK\$47 and HK\$57. Minimum wages in Hawaii are HK\$48 per hour. Information on United States labour costs (for Hawaii and Los Angeles) are taken from the 2003 Stillwater Report prepared for the Hawaii state government.<sup>165</sup> The figures in the Stillwater report relate to payroll and benefits for a retail station operating 24 hours a day and so are comparable to our estimate of Hong Kong labour costs.

Canadian minimum wages are HK\$50 per hour, while award conditions in New South Wales specify that petrol station workers aged 21 and over must be paid at least HK\$74 per hour. Lower awards apply to workers aged less than 21.

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<sup>162</sup> "Gas Station Management and Investigation of Structural Improvement", IEE Japan, March 2004

<sup>163</sup> [http://tonto.eia.doe.gov/dnav/pet/pet\\_cons\\_prim\\_a\\_EPM0\\_P00\\_Mgalpd\\_m.htm](http://tonto.eia.doe.gov/dnav/pet/pet_cons_prim_a_EPM0_P00_Mgalpd_m.htm)

<sup>164</sup> "Australia Service Stations 2004", Snapshots International, September 2004

"UK Service Stations 2004", Snapshots International, September 2004

"France Service Stations 2003", Snapshots International, May 2003

"Netherlands Service Stations 2003", Snapshots International, May 2003

<sup>165</sup> <http://www.hawaii.gov/dbedt/ert/act77/act77part1.html>, p. 67-68.

Table 14: Calculation of Non-fuel Income

	Hong Kong	Singapore	Tokyo	Seoul	Sydney	Hawaii	Los Angeles	Seattle	New York	London	Paris	Amsterdam	Toronto
<b>Petrol margin</b>	1.07	1.11	0.80	0.34	0.23	0.65	0.51	0.45	0.72	0.39	0.66	1.10	0.31
<b>Diesel margin</b>	0.74	0.20	0.38	0.59	0.45	1.54	0.74	1.03	0.80	0.52	0.45	1.01	n/a
<b>Turnover ratio Petrol : Diesel</b>	0.46	0.46	0.67	0.67	0.82	0.67	0.78	0.72	0.88	0.68	0.36	0.46	0.79
<b>Fuel margin</b>	0.89	0.62	0.66	0.42	0.27	0.95	0.56	0.62	0.73	0.43	0.53	1.05	n/a
<b>Non-fuel margin</b>	0.04	0.27	0.10	0.00	0.31	0.43	0.22	0.22	0.22	0.35	0.08	0.33	
<b>Total fuel plus non-fuel margin</b>	0.93	0.89	0.77	0.42	0.59	1.38	0.78	0.83	0.94	0.77	0.61	1.38	



### 10.3 Terms of Reference

#### Terms of Reference and Objectives

3. The Consultant is required to provide independent professional advice to the Government on a wide range of issues relating to competition in the auto-fuel retail market in Hong Kong, including but not limited to those set out in paragraph 4 below. All advice and recommendations tendered by the Consultant shall be supported by detailed analysis and references to current international practices. Upon request by the Government during and after the consultancy study, the Consultant shall also attend relevant meetings of the Legislative Council and any other meetings, such as COMPAG meetings and meetings with the Steering Committee to be formed to oversee the matter, from time to time as required by the Government.

#### Specific Tasks of the Consultancy

4. In relation to the Terms of Reference and Objectives as set out in paragraph 3 above, the Consultant is required to perform the following relevant tasks, in addition to any other tasks which may be necessary to complete the consultancy satisfactorily:

- (i) assess the competition situation in the auto-fuel retail market in Hong Kong taking into account all relevant factors including but not limited to market structure; sourcing; land costs; operating costs such as storage, distribution and retail; retail pricing; as well as the different economics and behaviours of consumer groups for different products;
- (ii) assess the impact, if any, of the new tendering arrangements for the petrol filling station sites (Attachment 1), on the competition situation in the auto-fuel retail market in Hong Kong;
- (iii) assess the impact, if any, of an addition of two new players into the market, on the competition situation in the auto-fuel retail market in Hong Kong;
- (iv) advise whether any of the oil companies in Hong Kong might have at any time during the period from 1 January 1998 to the completion of the consultancy engaged in any anti-competitive conduct, such as price-fixing, based on the competition guidelines promulgated by COMPAG (Attachment 2); and making reference to the competition laws in other economies such as the United States, European Union, Australia, Japan, and economies relying predominantly on imports of auto-fuel;
- (v) compare the after-duty auto-fuel retail prices in Hong Kong with those in other major economies, including but not limited to Singapore, Tokyo, London, Sydney and other comparable cities in the United States, Canada and the European Union, and critically explain the reasons for the relatively high prices in Hong Kong and whether any anti-competitive practices by the oil companies such as direct or indirect agreement to fix prices, etc. may be involved;

- (vi) compare the price setting and price adjustment practices in the auto-fuel retail market in Hong Kong with cities in other developed economies, including but not limited to Singapore, Tokyo, London, Sydney and other comparable cities in the United States, Canada and the European Union, and critically explain the reasons for the relatively uniform prices and often simultaneous price adjustments by different oil companies in Hong Kong, and examine whether any anti-competitive practices by the oil companies such as direct or indirect agreement to fix prices, etc. may be involved;
- (vii) propose ways to enhance competition and lower auto-fuel retail prices (excluding duty) in Hong Kong, and evaluate their feasibility, effectiveness and desirability, including but not limited to the introduction of sector-specific competition legislation, taking into account the characteristics of our economy, as well as our existing competition policy which adopts a sector-specific approach in dealing with anti-competitive practices and abuse of dominant position; and
- (viii) assess the possible impact of such legislative or other measures proposed under (vii) on competition in the auto-fuel retail market and auto-fuel retail prices in Hong Kong, having regard to both the characteristics of our economy and the experiences of tackling anti-competitive conduct of oil companies by legislative measures in the United States, European Union, Australia, Japan and other economies.