

# Auto-fuel Price Monitoring Analysis

(5 February 2015)

# Objectives of the study

By analysing the relationship between the pump price\* of regular gasoline of the 5 oil companies\*\* and the international (Brent) crude oil price from Jan 2013 to Dec 2014, the Consumer Council (CC) would like to study if there is any possible sign to the following pricing practices:

1. **Quick going up, slow coming down** (whether the pump price changes more quickly when international crude oil price rises, and more slowly when it falls)
2. **More going up, less coming down** (whether the pump price increases more in respond to the increase in international crude oil price and decrease less in respond to a decrease i.e. the gap between pump price and international crude oil price rises over time)

Since the price movements of regular gasoline and premium gasoline are highly correlated\*\*\*, this study focuses on the price movement of regular gasoline.

\* The retail price after tax and before cash discount

\*\* The 5 oil companies in Hong Kong are: Caltex, Esso, Petrochina, Shell and Sinopec

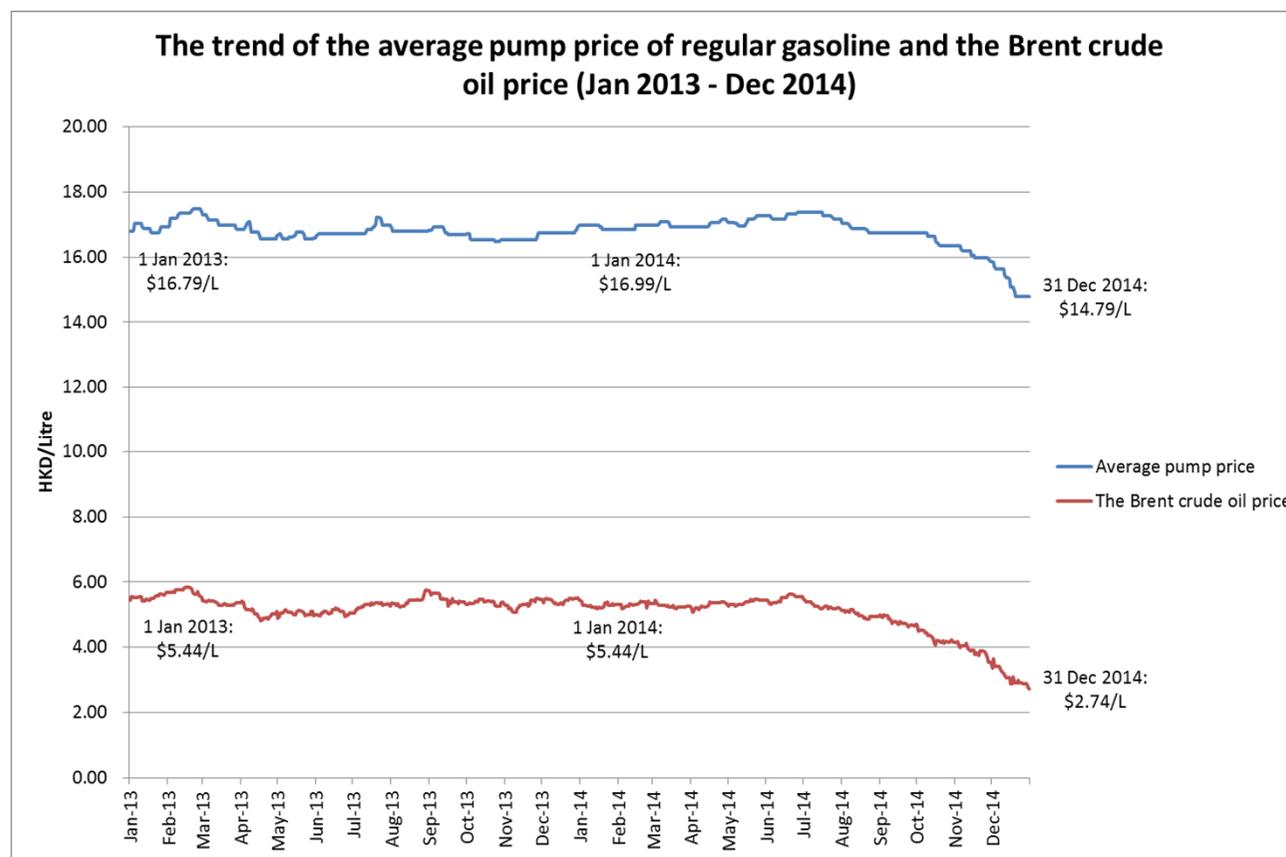
\*\*\* The correlation coefficient between regular gasoline and premium gasoline is around 0.99 for each oil company

## Limitations

- The study analyses based on data collected publicly by the Council.
- Cost data of oil companies, being commercially sensitive information, could not be obtained. As a result a precise understanding of the impact of oil price change to the profitability of the company could not be estimated. The study calculates the price gap as the gap between the Brent crude oil price and regular gasoline pump price for the analysis for different time periods.
- Market share and marketing programmes of each oil company are not available to gauge the effect of pricing practices to the public. In this study, general average approach is adopted to represent the overall effect of pricing practices of different oil companies.

# The Price Trend

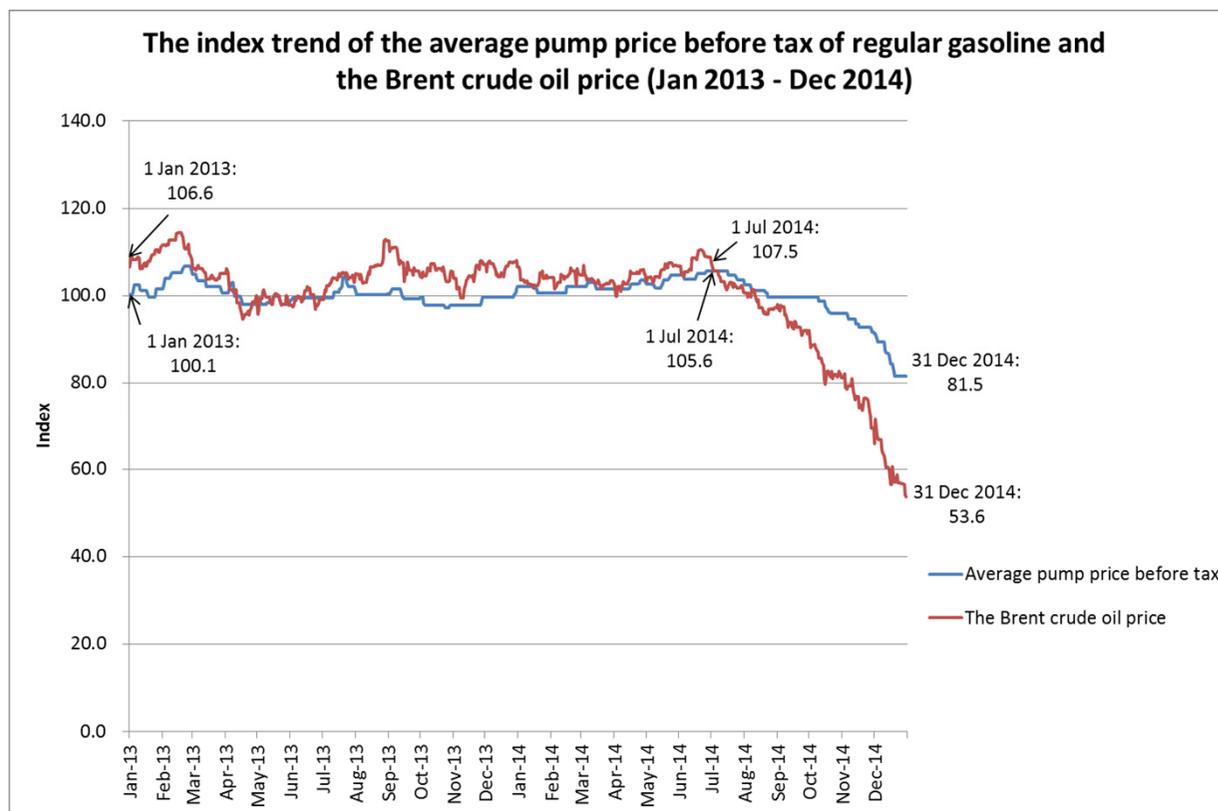
Average pump price\* and the Brent crude oil price both dropped after July 2014.



\*The average pump price is the aggregate average of the pump price of 5 oil companies in Hong Kong.

# Relative Change in Price

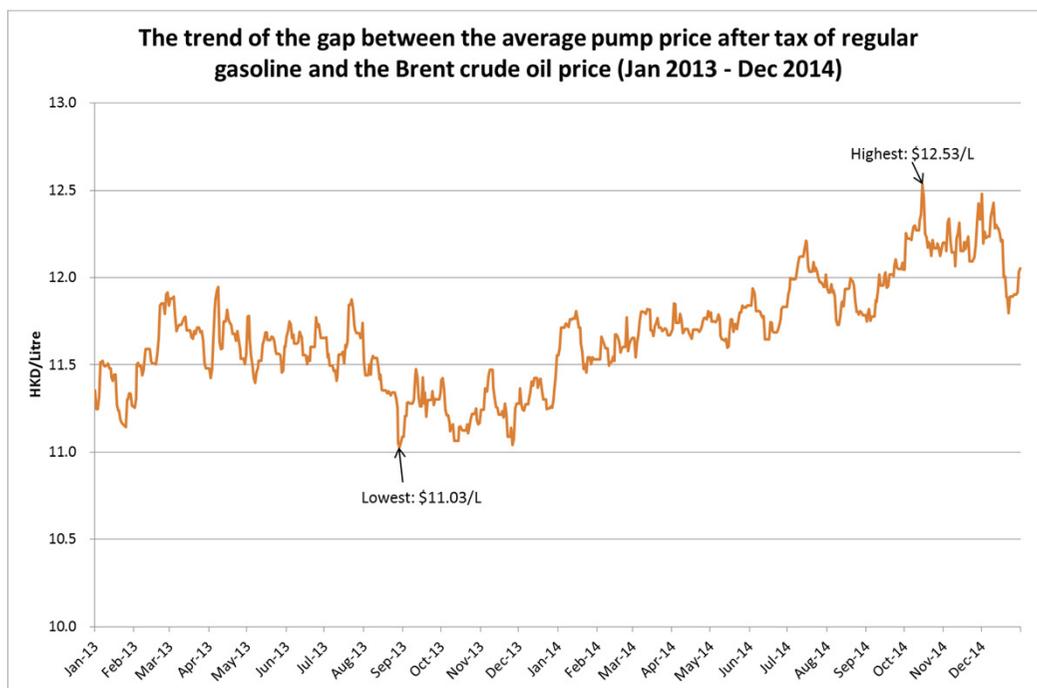
The drop in the Brent crude oil price is larger than that of the average pump price: 53.9 points drop for the Brent crude oil and 24.1 points drop for the pump price.



The average pump price before tax and the Brent crude oil price series are rescaled to facilitate comparison. Index 100 = overall average of average list price before tax and the Brent crude oil price in the period respectively.

# Gap in Average Price

The gap in average pump price and the Brent crude oil price widens gradually since July 2013. The volatility of the Brent crude oil price is not associated with the increase in the price gap between pump price and crude oil price.

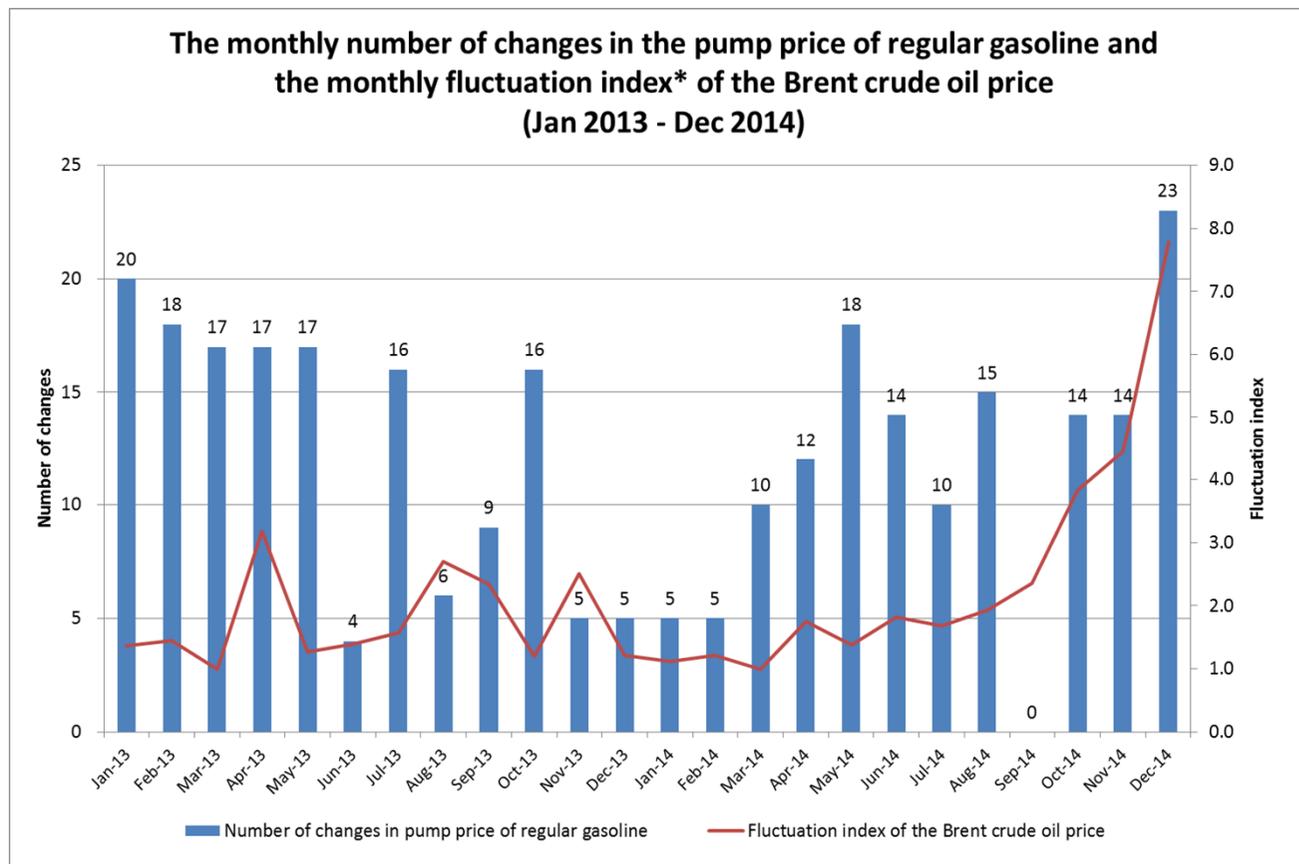


Period	Mean (HKD/Litre)		Standard Deviation (HKD/Litre)
	After tax*	Before tax*	
2013 H1 (Jan-Jun)	11.59	5.53	0.17
2013 H2 (Jul-Dec)	11.34	5.28	0.18
2014 H1 (Jan-Jun)	11.70	5.64	0.10
2014 H2 (Jul-Dec)	12.07	6.01	0.17

\*Tax: \$6.06/Litre

# Frequency of Price Adjustment (Overall)

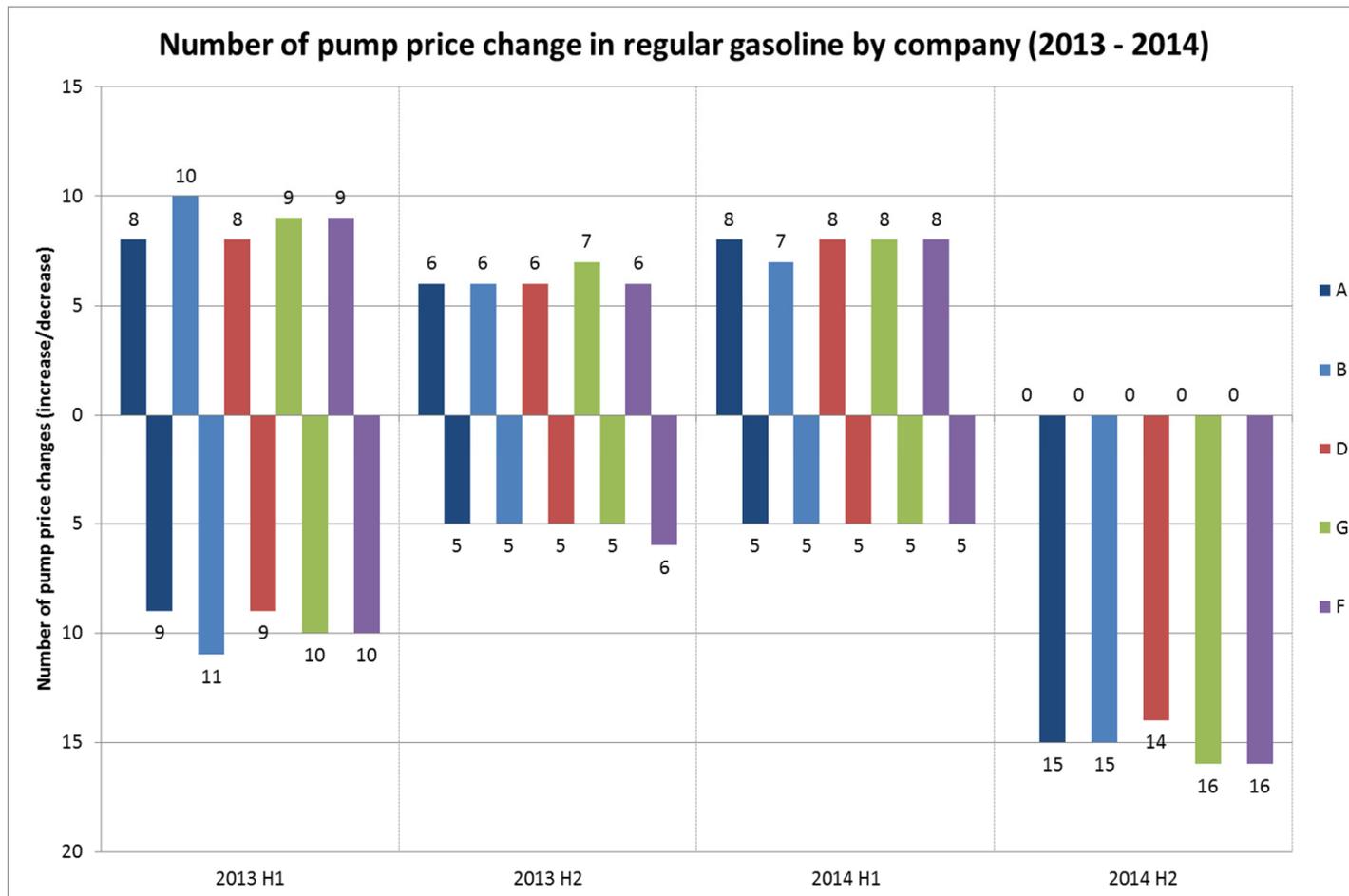
The frequency of price adjustment in the pump price of regular gasoline is unrelated to the frequency with which the Brent crude oil price varies, except in Dec 2014.



\*Fluctuation index equals to the coefficient of variation (standard deviation divided by the average).

# Frequency of Price Adjustment (By Company)

Behavior of the five oil companies is very similar.



# Time Lag Effect: Average Number of Days for Price Adjustment

The Brent crude oil price significantly affects the average pump price in 2013 H1 and 2014 H2.

Period	Days interval between change in the Brent price and average pump price	
	Increase	Decrease
2013 H1	<b>4 days</b>	No direct relationship
2013 H2	No direct relationship	
2014 H1	No direct relationship	
2014 H2	Not applicable*	<b>8 days</b>

\* There is no price increase in pump price of regular gasoline in 2014 H2.

# Number of Days for Price Adjustment

Different companies record different time delays in response to the Brent crude oil price changes.

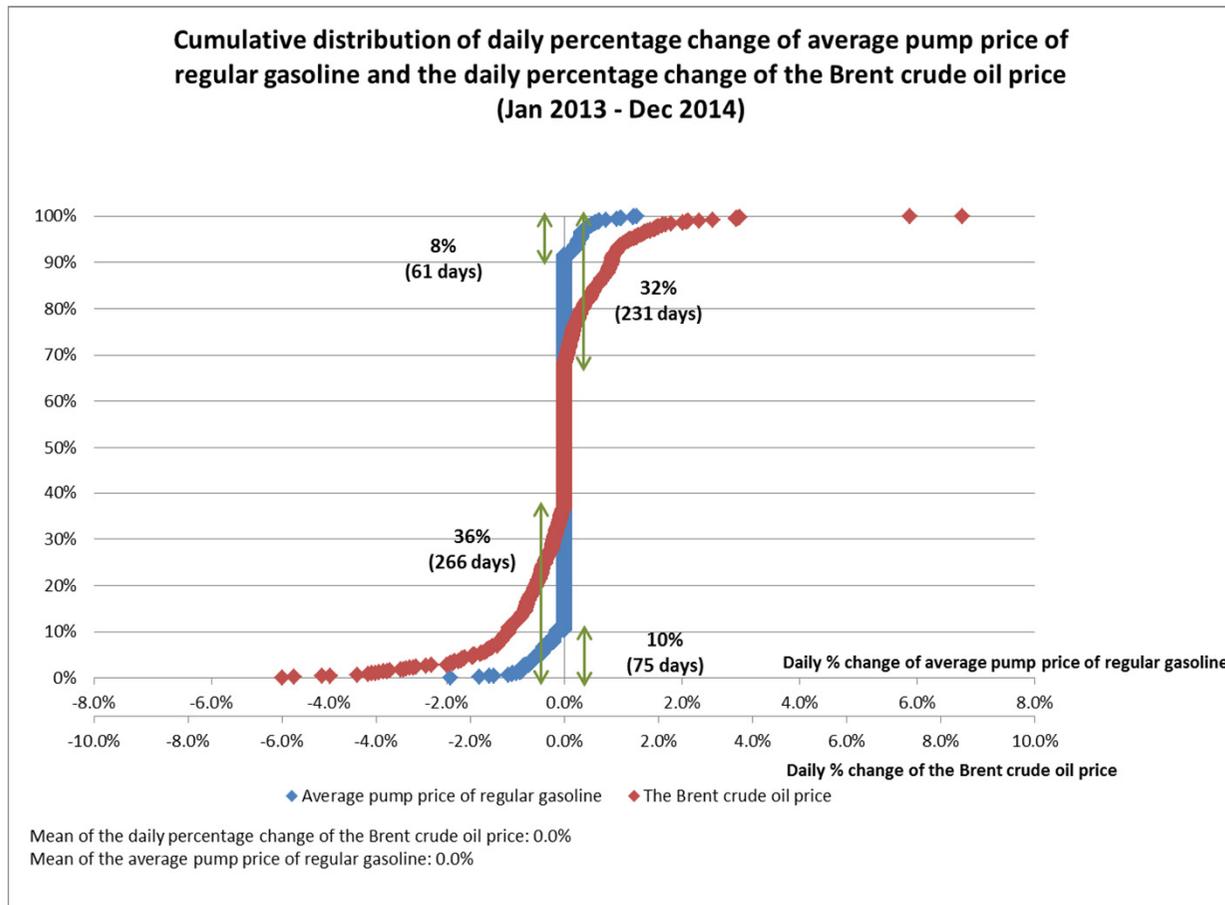
Company	Days interval between change in the Brent price and pump price	
	2013 H1 Increase	2014 H2 Decrease
A	4-7 days	4/8 days
B	No direct relationship	4 days
D	No direct relationship	7 days
G	No direct relationship	6 days
F	3 days	4 days

## Key Findings

- A possible sign of “Quick going up, slow coming down” in two periods:
  - In 2013 H1, increase in the Brent crude oil price significantly affects the average pump price in 4 days.
  - In 2014 H2, the decrease in the Brent crude oil price significantly affects the average pump price in 8 days.
- Each company has different response and pricing mechanism to address the change in market and pump price.

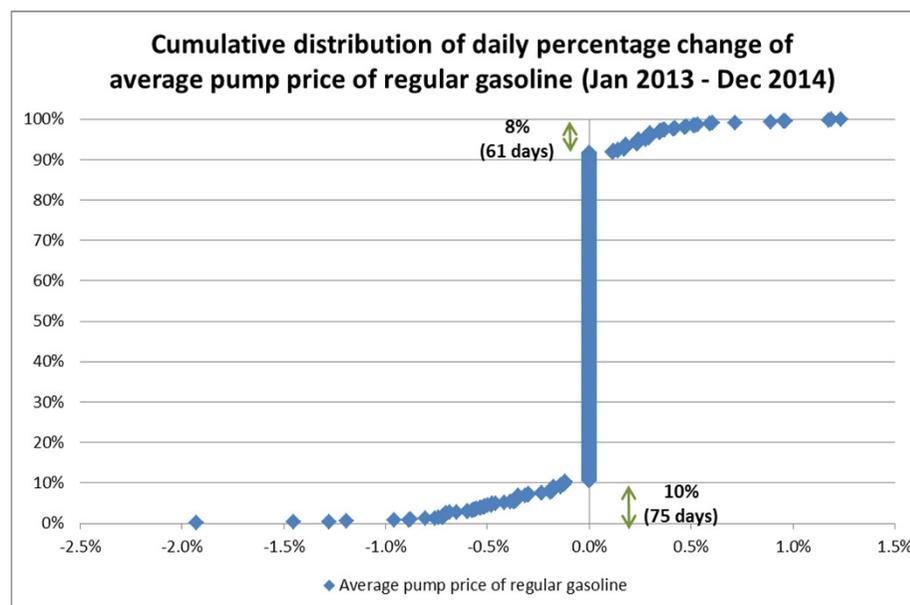
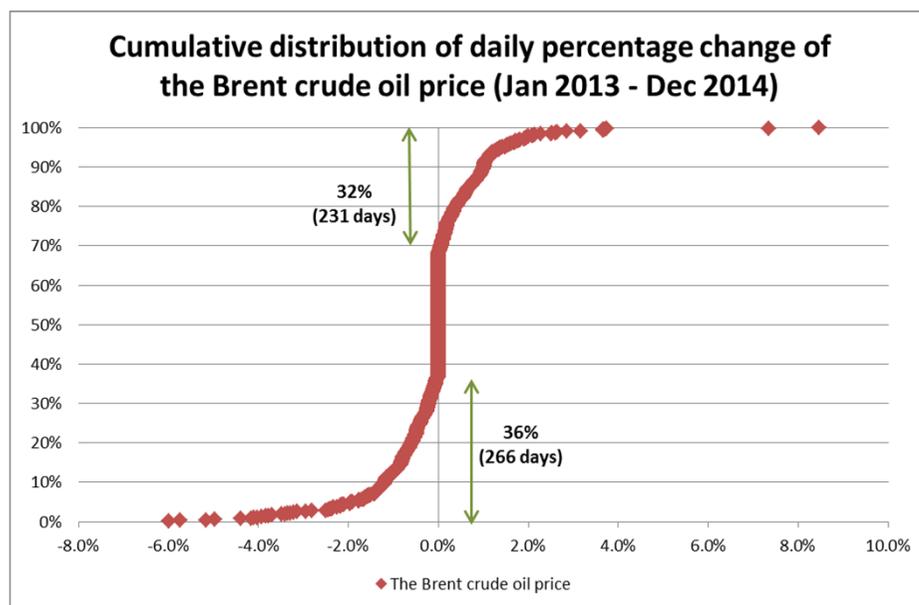
# Magnitude of Changes in Average Price

The magnitude of daily percentage change of the Brent crude oil price is usually larger than that of daily percentage change of average pump price.



# Magnitude of Changes in Average Price (Cont'd)

The Brent crude oil price changes much more regularly than average pump price.



The average pump price of regular gasoline has less changes in price, decrease and increase at around 8% - 10% of days (61 days – 75 days) respectively. This might reflect the fact that auto-fuel is imported into Hong Kong only several times a month.

The magnitude of average pump price change of regular gasoline is within a narrower range than that of the Brent crude oil price.

# High Price Gap

Associated with the high proportion of days with significant daily percentage decrease in the Brent crude oil price.

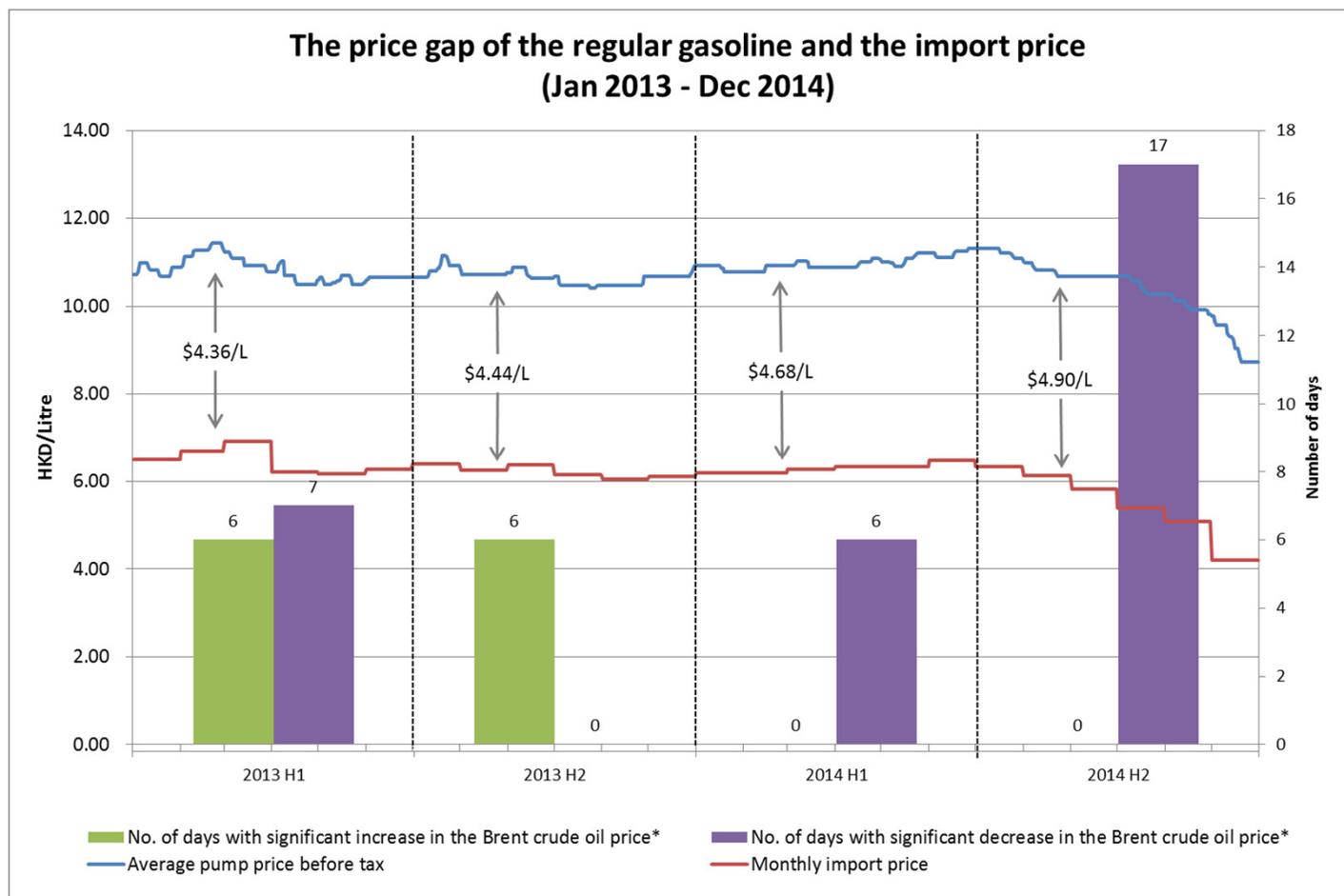
Period	Average difference between average pump price (before tax) and the Brent crude oil price	Proportion of days with significant daily % change in the Brent crude oil price*	
		Increase	Decrease
2013 H1	5.53	5%	6%
2013 H2	5.28	5%	0%
2014 H1	5.64	0%	5%
2014 H2	6.01	0%	13%

\*Significant price changes: The accumulated value is larger than or equal to 2% in at least 3 consecutive days.

2014 H2 is with the highest price gap between the average pump price and the Brent crude oil price, where it also has the highest proportion of days with significant daily % decrease in the Brent crude oil price.

# High Price Gap (Import Price)

The price gap with import price widens particularly in 2014 H2, when significant daily percentage decrease in the Brent crude oil price recorded.



\* Significant price changes: The accumulated value is larger than or equal to 2% in at least 3 consecutive days

## Key Findings

- Magnitude and number of days of the Brent crude oil price changes and those of retail pump price change are quite different.
- Price gap between retail pump price and import oil price increased in the last two years.
- Higher product cost margin at \$4.9/Litre was recorded in particular 2014 H2 as the Brent crude oil price decreased significantly.
- Price gap is high with more days with significant decrease in the Brent crude price of a period but is not related with the number of days with significant increase in the Brent crude price of a period.

## Conclusions

- The short lag response to increase in Brent crude oil price and long lag response to decrease in the Brent crude oil price were observed in the 2013 H1 and 2014 H2 respectively.
  - A possible sign of “quick going up, slow coming down”
- Price gap between retail pump price and the Brent crude oil price (import oil price) increased in the last two years.
  - A possible sign of “average going up, less coming down”
  - A possible sign of “no going up, less coming down” in 2014 H2
  - Appeared in time when the Brent crude oil price recorded more frequent and significant decrease in price

## Conclusions (Cont'd)

- There is a concern on the finding on the increase in average price gap in the recent 2 years and similar findings in the 2011 study by the Council.
- The Council recommends the Government to take appropriate measures to increase the transparency by means of information disclosure in particular to:
  - more frequent reporting on import oil price and trend analysis
  - cost structure in the market like the “Study of the Hong Kong Auto-fuel Retail Market” released in 2006

So as to facilitate public understanding and scrutiny on the impact of auto-fuel price fluctuation on consumers.

# Annex 1 : Prior Studies

## Three prior studies in Hong Kong / Singapore investigating the retail pricing of auto-fuels

- In 2006 Arculli & Associates, NERA undertook a study of auto-fuel retail market
  - Concluded no clear evidence that auto-fuel suppliers colluded
  - However, the concentration, degree of vertical integration, small size and the difficulty in opening new retail sites meant risk of collusion could occur
  - In response CC was asked to undertake weekly monitoring of prices
- In 2011 CC received a complaint from a group of commercial drivers alleging coordinated pricing of diesel and LPG, and also a “more going up, less coming down” reaction to changes in world price, as well as a “quick going up, slow coming down”
  - CC concluded “more going up, less coming down” was observed
  - The reduction in Government’s cut in diesel duty was not fully passed through to consumers
- In 2011, Singapore Competition Commission examined the market for the same issues but did not find statistically robust evidence of wrong doing

# Annex 2 : Oil Companies' Responses

## Response from Oil Companies about the Practice of “Quick Going Up, Slow Coming Down”

- Response from the 1<sup>st</sup> company
  - “Our auto-fuel prices are affected by a number of factors, including land cost, duty, salary and wages, other operating expenses, and so on. As most automotive fuels used in Hong Kong are imported, our auto-fuel prices would change as a result of changes in the Singapore FOB prices. According to the current figures, the trend of local auto-fuel prices has been in line with the movement of Singapore FOB prices. In addition, crude oil prices, which most people mention, are not applicable to the local market.
  - Since Singapore FOB prices started to fall in July 2014, our company has kept revising downward the retail pump prices for both gasoline and diesel products. On an overall basis, our company’s adjustment on fuel prices including retail pump price reduction and promotion rebate/ discount is in line with Singapore FOB price trend.”

## Response from Oil Companies about the Practice of “Quick Going Up, Slow Coming Down” (Cont’d)

- Response from the 2<sup>nd</sup> company
  - In determining the pump price many cost factors are taken into consideration including product cost, business operating costs, service station land costs, government taxes and excise duty, discounts and market competition.
  - It should be noted that the widely reported comparisons of pump price and crude oil cost fluctuations merely in percentages of change over time should be treated with caution. Firstly our fuels are imported refined oil products and not crude oil hence our product cost should be better referenced against the Mean of Platts Singapore (MOPS) which does not always follow exactly the international crude oil price in terms of timing and magnitude. Secondly, product cost is only one of the major cost components of the pump price; the other major cost components including government excise duty, operating costs, customer discounts and promotions, land costs etc. are not significantly impacted by product cost reductions and on the contrary have been increasing in recent years. Since only a portion of the pump price is affected by the change in product cost, pump price would not fall by the same percentage as product cost when all factors are taken into consideration.

## Response from Oil Companies about the Practice of “Quick Going Up, Slow Coming Down” (Cont’d)

- Response from the 3<sup>rd</sup> company
  - “油品價格由多種成本構成，除進貨價外，公司還需考慮顧客利益、運營成本、市場競爭、折扣優惠、保險、地價、安全環保成本、管理成本及通脹等綜合性因素。即使上述因素（除進貨價波動外）近年均不斷上升，公司依然努力實施油價“減快、加慢”。
  - 油品的進貨價僅佔公司定價因素的一部分，當原油價格及MOPS急跌時，零售價格受其他上升或不變的成本影響，一般不會完全依照原油或MOPS的跌幅平行下跌，因此會出現兩者的價差看似被拉大的情況，此結果為自由市場及競爭的正常經濟現象。
  - 自進入香港市場以來，公司一直恪守香港法律，並在燃油零售市場扮演積極角色，努力也非常樂意為顧客提供更高的折扣和優惠。

## Response from Oil Companies about the Practice of “Quick Going Up, Slow Coming Down” (Cont’d)

- Response from the 4<sup>th</sup> company
  - There seems to be a general perception by the public that percentage change in crude price should mean the same percentage change in gasoline retail pump price.
  - Gasoline retail pump price is made up of 3 major cost components:
    - (1) Finished product import costs
    - (2) Government fuel tax
    - (3) Operating costs (examples of operating expenses: land cost, labour cost, transportation cost, marketing, tax, office rentals, Tsing Yi Terminal operating cost, utilities etc.)
  - Crude price does affect gasoline retail pump price but only the finished product import cost portion (i.e. component (1) above) of the gasoline retail pump price. Components (2) and (3) remain fairly constant as Government tax and our operating costs (labour, land, transportation, etc.) will not be reduced even when crude price/import product cost drops.