Supply of road fuel in the United Kingdom market study

Initial update report

6 December 2022

The Competition and Markets Authority has excluded from this published version of the market study report information which it considers should be excluded having regard to the three considerations set out in section 244 of the Enterprise Act 2002 (specified information: considerations relevant to disclosure). The omissions are indicated by [✂].

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Annexes

Executive summary

1. On 11 June 2022 the then-Secretary of State for Business, Energy and Industrial Strategy (the Business Secretary) wrote to the CMA requesting that it carry out an urgent review of the fuel market, as well as a longer-term market study into whether the retail fuel market has adversely affected consumer interests. He asked to receive the initial report by 7 July 2022.

2. Alongside the publication of our Urgent Review of the Road Fuel market on 8 July 2022, we launched a market study to gain a broader and deeper understanding of the market. This would allow us to use our formal information gathering powers to consider developments in the market over a longer timescale, including drivers of recent spikes in the "refining spread", the functioning of the fuel wholesaling sector and certain aspects of the retailing sector.

3. In our Urgent Review we found the following:

    - **Prices:** We noted increased volatility, including temporary historic peaks, in retail prices for both petrol and diesel in recent months. These were accompanied by volatility in key components of pump price: crude oil, refining spreads and retail spreads;

    - **Refining:** We found a growing gap between the price of crude oil entering refineries and the wholesale price of petrol and diesel leaving them (the "refining spread") and said our market study would investigate why refining spreads were so high and what, if anything, ought to be done to bring them back down;

    - **Wholesale:** We did not investigate the independent wholesale segment of the supply chain, but committed to do so during our market study; and,

    - **Retail:** We found no strong indication that rising retailer spreads had driven the significant rise in pump prices seen during the preceding twelve months, and we found that the cut in fuel duty had been passed on. However, we committed to examine the retail sector further in our market study, with a particular focus on the relationship between wholesale and retail fuel prices, factors driving local and regional variations in prices, and the role played by major supermarkets in the road fuel retail sector.

4. At the launch of our market study we proposed to publish an update in Autumn 2022. We are now publishing this initial update report to provide an overview of the work we have carried out so far, set out the emerging picture that we are seeing in the market, and invite views from industry participants and other interested parties.

5. While our analysis is not yet complete, we are able to set out what work we have done and what we have observed so far:

- **Prices**: Since we started our market study petrol and diesel prices have come off these peaks, though they have recently begun to increase again, with diesel prices in particular coming close to the previous peak, and an increased gap opening between petrol and diesel prices.

- **Refining**: refining spreads hit a historic peak in the first half of 2022, but this episode was short-lived and driven by global factors. However, we have recently seen refining spreads increasing again, with those for diesel hitting a new high of 35ppl in October. Over the medium term, UK refiners have not earned profits at levels that would give us cause for concern. At this stage, our preliminary view is that refiners have earned higher profits than usual in 2022, but they had made lower than usual, or even negative, profits during 2020 and 2021.Taking these impacts together, over the period since 2020 refiners have earned either low or negative margins; in effect, the margin spike in 2022 has done no more than even out the margin troughs in 2020 and 2021.

  As a result, refiners have not made excessive profits over the past five years. While refining margins may continue to be subject to volatility due to global factors, including periods of higher profitability, and this is likely to result in price volatility at the pump, this appears to stem from our exposure to global factors, in particular the historical reliance of North West Europe on Russia for diesel imports, rather than a reduction in UK refining competition. While we do not, therefore, believe that this volatility can be mitigated by measures to improve directly the functioning of the UK market, the impact of higher price volatility and periods of high pump prices on motorists is significant. We will consider wider policy options for mitigating these effects in the next phase of our study.

- **Wholesale:** Our investigation of the wholesaling sector, which buys fuel from domestic and overseas refiners to sell on to retailers, is at an early stage. We are working to understand wholesaler margins (taking into account the margin earned on fuel cards and biofuels). We have found that the duration of wholesale contracts is typically up to five years and that this can facilitate recovery of upfront rebranding costs associated with retailers switching brands. We have not so far seen specific evidence of suppliers enforcing volume commitments strictly (eg when demand fell drastically during the covid lockdowns) with adverse effects on competition or consumers, but we welcome any further evidence from stakeholders on this issue. We will analyse margins in the wholesaling sector in the next phase of our study.

- **Retail:** During the market study we have expanded our consideration of the retail sector from the Urgent Review. This has included extending the period we are looking at back to 2015 alongside obtaining company-level financial

data. Our current position on the three areas we proposed to consider is set out below:

- **The relationship between wholesale and retail prices**: We see some reasons to suspect that retail margins have increased over the past five years. Retailer fuel margins (which do not take into account non-fuel costs) have increased year-on-year over the period. Based on current petrol and diesel prices the margin increases we have seen over this period would equate to approximately 2-3ppl on diesel and 3-4ppl on petrol. We need to investigate further to understand to what extent these may be reflective of higher operating costs that are not included in fuel margins, temporary volatility in the global market or a longer-term weakening of competition. We also see evidence of changes in pricing behaviour, with some generalised "rocket and feather pricing" emerging in 2022. This coincided with a period of extreme volatility in wholesale prices, so we need to do further work to understand what caused this and whether it is going to persist.

- **Local and regional variation in price**: We also observe pricing differentials between sites in different geographical locations. With the exception of Northern Ireland, differences in average price by region are small, as is the difference in average price of urban vs rural areas. In general, the highest-priced PFSs (petrol filling stations) have fewer competitors, and fewer of these are supermarkets, of which fewer are Asda sites. Motorway PFSs are significantly more expensive than non-motorway sites, but price variation between motorway PFSs is relatively small.

- **The role played by supermarkets**: Our analysis shows that supermarkets continue to price below non-supermarkets, and the presence of a supermarket is associated with lower prices at other PFSs in the area. However, as noted above, we do observe that supermarket fuel margins have been rising over the past five years; while still below those of non-supermarkets, the gap has narrowed. We will continue to investigate this in the next phase of the study, as well as considering the impact of recent supermarket merger activity on competition in the road fuel market.

6. We are inviting feedback on our initial analysis and reasoning set out in this report. We will take this into account as we develop our initial findings report to be published in Spring, followed by our final report in advance of our statutory deadline of 7 July 2023.

Background

7. Petrol and diesel are produced by refining crude oil. This can take place domestically, at one of the UK's six major refineries, or overseas, with refined fuel being imported into the UK. Retailers purchase refined fuel either directly from refiners or importers, or via independent wholesalers. Retailers then sell petrol and diesel directly to motorists, overwhelmingly at one of the UK's more than 8,300 PFSs.

8. On 11 June 2022 the Business Secretary wrote to the CMA requesting that we carry out an urgent review into whether the retail fuel market had adversely affected consumer interests. The Business Secretary asked that we consider the health of competition in the market, geographical factors, including localised competition, and any further steps that the government or the CMA could take to strengthen competition, or to increase the transparency that consumers have over prices. He also asked that we give particular consideration to whether the government's cut to fuel duty of 5 pence per litre had been passed on to consumers, geographical factors, and whether there were steps the government could take to increase consumer price visibility in the market. In addition, he requested that we launch a longer-term market study.

9. Increases in the cost of living have been of great concern for the public in recent months, with the Consumer Price Index rising by 9.6% in the 12 months to October 2022. According to the Office for National Statistics, 91% of adults in Great Britain reported an increase in their cost of living compared to a year ago. In this context, the increase in fuel prices has been a clear source of concern for motorists. On 8 July 2022 the CMA published its Urgent Review and announced that it was launching a market study to consider issues of potential concern at different levels in the fuel supply chain.

10. Our Urgent Review considered the price of fuel over the preceding year, finding that:

    - The main drivers of increased road fuel prices were the rising cost of crude oil, and a growing gap between the crude oil price and the benchmarked wholesale price of petrol and diesel – the so-called 'refining spread'.
    - The refining spread more than tripled over the year to July 2022, growing from 10p to nearly 35p per litre.
    - Over the same period, the 'retail spread' (the difference between the benchmark wholesale price and the price charged to motorists) fluctuated but remained about 10p per litre on average.
    - On the whole the fuel duty cut appeared to have been implemented, with the largest fuel retailers doing so immediately and others more gradually.

- There are significant differences in price between many rural and urban areas.

11. Given the elevated price of fuel (which hit record levels in the week the Urgent Review was published) and the associated levels of public concern, we decided that we should launch a market study to consider the potential areas for concern that we observed. In particular, we proposed that this should cover:

    - Refining: Understanding what has driven recent very high spreads, increasing our understanding of how long they are likely to persist, and assessing whether there are measures the UK could or should be taking to address them or to guard against future spikes.

    - Wholesale: Analysing wholesale supply arrangements with retailers.

    - Retail: Despite our finding in the Urgent Review that retailer spreads had not been a driver of increased pump prices over the preceding year, we wanted to investigate further, including considering three areas of potential concern:

        - Factors driving local and regional variations in prices;

        - The relationship between wholesale and retail fuel prices;

        - The role played by major supermarkets in the road fuel retail sector and potential for further benefits for consumers from competition across different types of retailers.

12. We did not propose to consider extraction or crude oil dealing within the scope of the market study. This was because the price of crude fluctuates on global markets, and there is limited scope for UK action to affect this.

13. We set out the above in our Invitation to Comment, which we published on 8 July 2022, and invited input from all interested stakeholders.

What we have done

14. Our aim for the market study has been to expand on the work of the Urgent Review across several dimensions to address a broader scope and perform a deeper analysis.

15. First, we have considered the issues over a longer time period. Where the Urgent Review focused on the year from July 2021 to July 2022, we have looked back over a period of five years. This allows us to consider the performance of the sector over a timescale that predates two major sources of external disruption: the covid pandemic and the Russian invasion of Ukraine. We have also extended the

analysis forward in time, allowing us to consider how the market has developed since we published the Urgent Review.

16. Second, we have sought to move beyond analysis of aggregated spreads to analyse the margins of individual companies in the supply chain. Unlike spreads, margins allow us to consider the costs faced by individual market participants and therefore to understand better the profit margins that they are making over time. Understanding the path of margins, and factors which are driving them, can therefore give us a much stronger indication of whether there are potential concerns over how the road fuel sector is operating for consumers, at each stage of the supply chain.

17. Third, we have carried out econometric analysis to understand the drivers of the pump prices that consumers face at different filling stations across the country. This allows us to look below the aggregate picture to see what is happening in greater detail.

18. In order to inform our work we have:

- Considered responses to our Invitation to Comment (which we have now published on our case page);
- Issued requests for information under our compulsory information-gathering powers to the major UK participants, including all six major UK refiners, and the largest wholesalers and retailers. We have also requested information on a voluntary basis from some smaller retailers.
- Met with the major UK refiners, a number of wholesalers and retailers, industry representative bodies, and consumer advocacy groups.

19. Using the information gained via this engagement we have begun our analytical work and are now able to share some of our emerging analysis. We want to hear views from industry participants and other stakeholders, so that we can feed these into our further work as we deepen and widen this analysis.

What we have found

(i) Retail prices of petrol and diesel

20. Figure 1 below shows the path of the nominal pump price for petrol and diesel since 2015. Despite ongoing volatility, we can see three main phases. First, in the period 2015-2017, petrol and diesel average retail prices were in the range 100–120ppl. Second, in 2018-19, these increased to 120–140ppl. Third a period of higher volatility, during which average retail prices dropped significantly in the first half of 2020 during the COVID-19 pandemic before increasing in 2021 and 2022, reaching peaks of 190–200ppl. Both petrol and diesel prices have come off these peaks,

though they have recently begun to increase again, with diesel in particular coming close to the previous peak. One notable trend in the graph has been an increased differential between petrol and diesel prices during 2022. This is because North West European prices of diesel have increased relative to petrol. A significant proportion of diesel in North West Europe has historically come from Russia. Therefore the supply shock associated with the Russian invasion of Ukraine has had a greater impact on UK prices for diesel than for petrol.

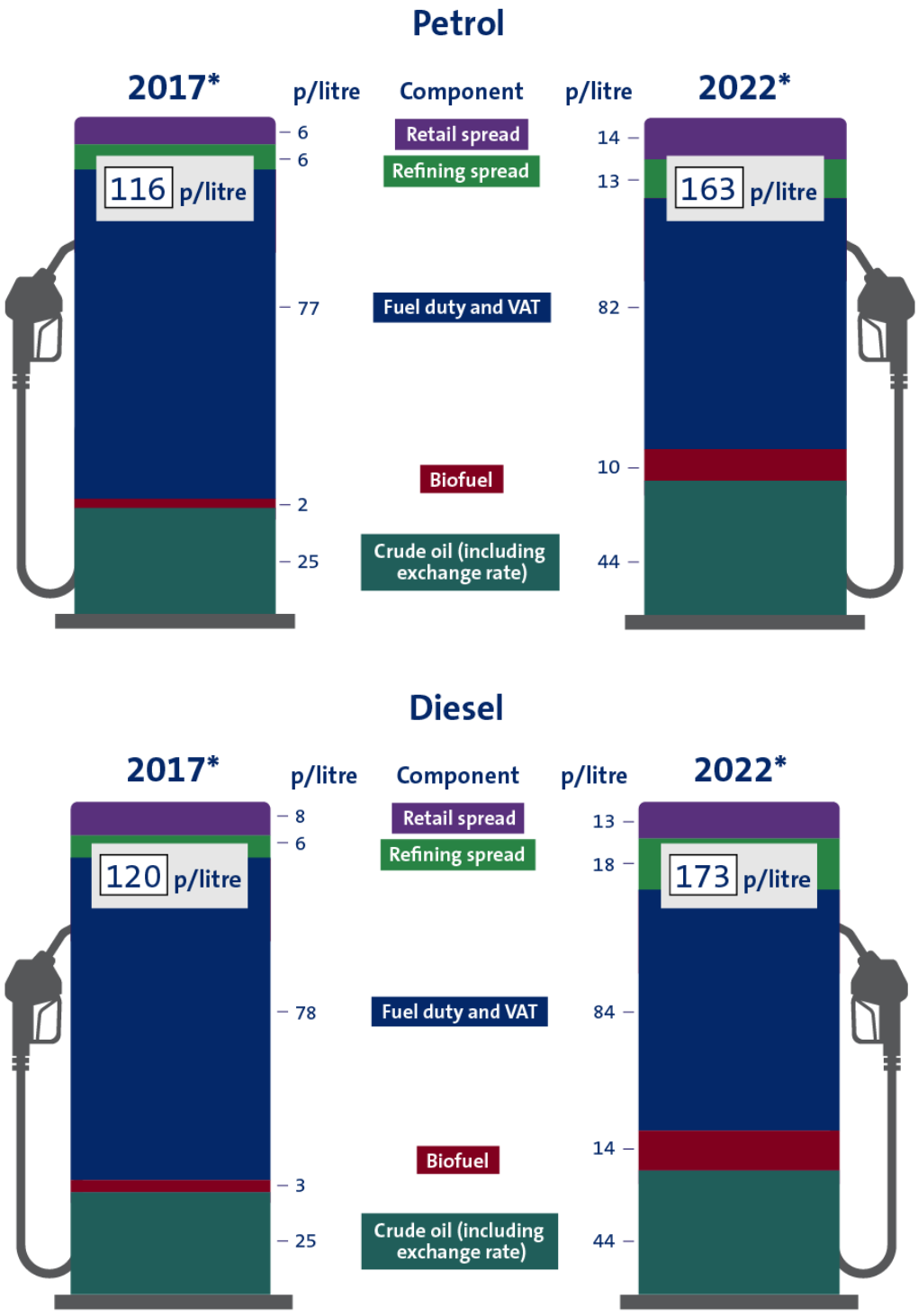
Figure 1: Retail price, January 2015 – October 2022, ppl, petrol and diesel

Source: BEIS. Weekly road fuel prices - GOV.UK (www.gov.uk)

(ii) Components of pump price

21. Figure 2 shows average prices at the pump for petrol and diesel for the years ending October 2017 and October 2022, broken down into broad component categories. As the figure shows, the crude oil, biofuel, refining spread and retail spread components have grown between 2017 and 2022 for both petrol and diesel, and each of these components makes up a greater share of the pump price in 2022 than in 2017, while the share of fuel duty and VAT has fallen between 2017 and 2022.

Figure 2: Average pump price with components for petrol (top) and diesel (bottom), 2017 vs 2022, pence/litre

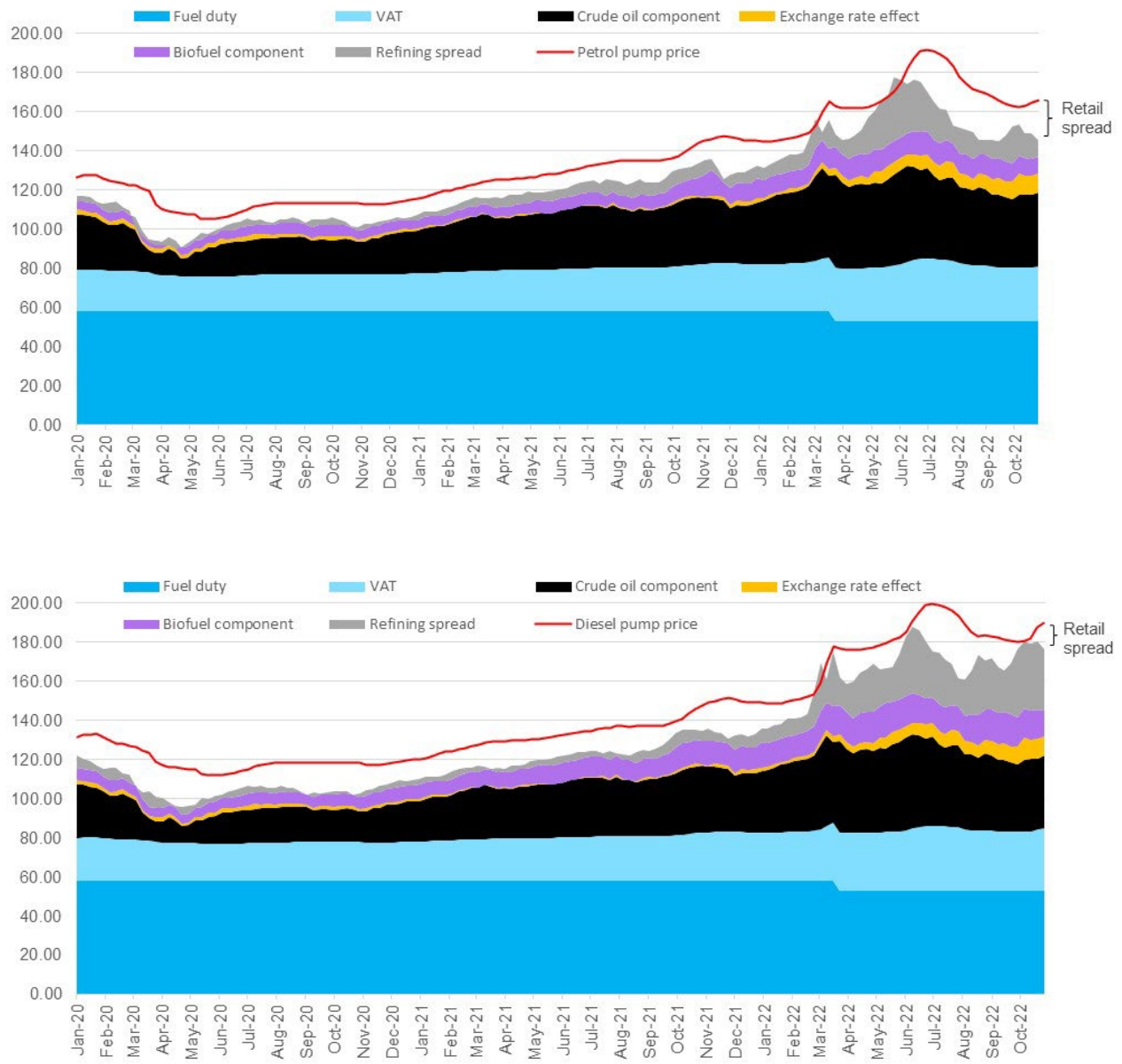


Source: BEIS, Platts, Bloomberg and Bank of England data, and CMA analysis.
Note: *Data is averaged over 52 weeks as follows: 2017 includes 52 weeks in the period November 2016 – October 2017, and 2022 includes 52 weeks in the period November 2021 – October 2022.

22. Building on the work of the Urgent Review, we have extended our analysis of pump price components further into the past and forward to October 2022. We have also

separated out the cost of biofuels from the refining spread as the majority of these are imported, with the price set by global markets.

Figure 3: Pump price with components, January 2020 – October 2022, ppl, petrol (top) and diesel (bottom)



Source: BEIS, Platts, Bloomberg and Bank of England data, and CMA analysis.
Note: The exchange rate effect is calculated relative to 7 June 2021, and it is negative in some periods.

23. The above charts show that:

- Both petrol and diesel pump prices peaked around the time we published our Urgent Review in early July and then began to fall. Since September, the pump price has stopped falling and begun to tick back up, particularly for diesel.

- The July peaks in price were preceded by peaks in the refining spread. These also began to fall in early Summer and continued to do so for petrol. For diesel, refining spreads increased again to a new peak in mid-October, remaining at an elevated level at the end of October.

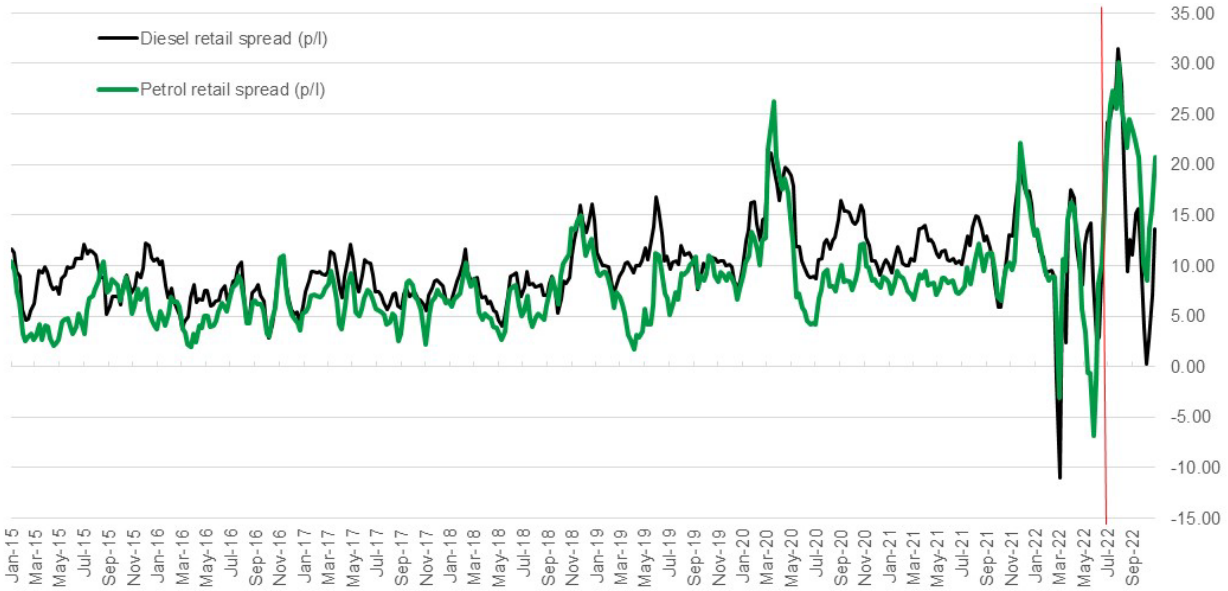
- Retail spreads in both petrol and diesel peaked shortly after we published our Urgent Review. For petrol, retail spreads have remained elevated in most weeks since then. For diesel, retail spreads remained at high levels for several weeks, before declining significantly at the start of October and then increasing again at the end of the month.

- We observe an inverse relationship between refining spread and retail spread. When refining spread has risen, retailing spread has fallen (sometimes into negative territory, implying that, on average, retailers are making a loss on fuel during these periods). When refining spread has fallen, retail spread has increased. The volatility of refining spread in the past year has heightened this effect. These effects do not fully cancel each other out, however; retail spread plus refining spread is clearly at a higher level than previously since March 2022.

- We can also see the impact of the weakening of the pound against the dollar, which has accounted for an increasing proportion of the pump price since January 2021. By October 2022 this had added around 10 ppl to the pump prices for petrol and diesel.

24. Retail spreads have been a relatively small component of the pump price for both petrol and diesel, ranging from 5 to 10ppl in the majority of weeks over the period 2015–2019. Retail spreads increased in the first half of 2020 coinciding with the COVID-19 lockdown which led to a significant drop in demand for road fuel and a significant fall in the price of crude oil. Since the end of 2021 there has been increased volatility in retail spreads, including periods of negative values as well as record highs.

Figure 4: Retail spreads for petrol and diesel, January 2015 – October 2022, pence/litre



Source: BEIS, Platts, Bloomberg and Bank of England data, and CMA analysis.

25. It is clear from the spread analysis that a very significant proportion of the variation in pump prices since 2020 has been caused by factors outside the control of UK refiners, wholesalers and retailers: crude oil and biofuels prices, exchange rate, refining spread (see below), and tax and duty. This element of the variation cannot therefore be attributed to any deficiency in competition within the UK market. Given the global market dynamics, we can expect this volatility to continue in the coming years, though not necessarily to the extent we have seen since the start of the covid pandemic, and particularly since the Russian invasion of Ukraine.

26. Nonetheless, there may be some factors that *are* within the control of UK firms, which are contributing to increased volatility and/or higher prices. Consumers may have concerns that these factors may be both exacerbating the external factors driving pump prices, as well as being somewhat obscured by them. It is important that we get to the bottom of whether this is the case.

27. While spread analysis of the type described above is helpful for understanding the drivers of overall pump prices over time, it is not a good measure for understanding the underlying profitability of firms active at different levels in the market. We have therefore gathered financial and other information relating to individual firms in order to understand how competition is working at different levels of the supply chain; we set out our initial work on this in the three sections below.

(iii) Refining

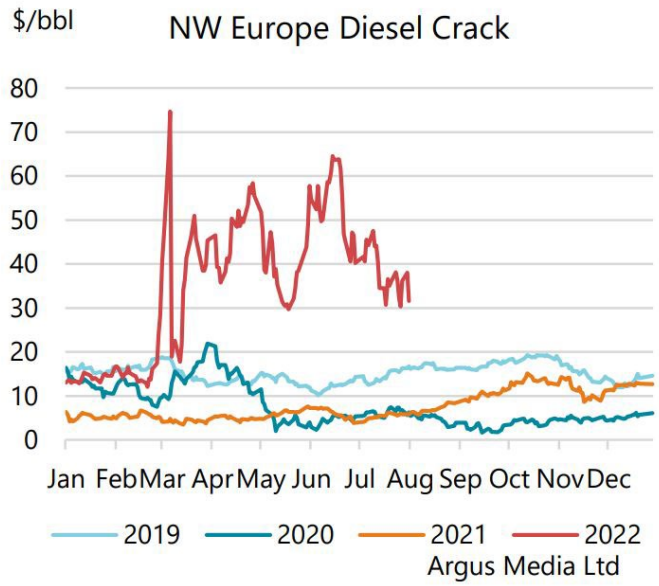
28. The UK refining sector is made up of six major refiners, which operate processes to transform crude oil into petrol, diesel and other products. Together they produce around 40% more petrol than is consumed in the UK, but only around 55% of domestic consumption of diesel, with the shortfall being made up by imports. They

then sell their refined product either directly to retailers, or to independent wholesalers.

29. The market for wholesale petrol and diesel is globalised, which means that the price UK refiners are able to set for their refined product is essentially determined by the prevailing international price. Indeed, refiners sell the bulk of their road fuel on the basis of contracts with terms linking the selling price to a benchmark import price (in dollars) for petrol and diesel.

30. Given that the price of crude is also set by international supply and demand, this means that UK refiners do not exercise control over the level of refining spread they experience; rather this fluctuates according to global supply and demand. Other countries have experienced similar fluctuations in refining spread during 2022, as shown by Figure 5, below.

Figure 5: Refining spread ("crack") for diesel in North West Europe, 2019-2022.



31. Significant shocks to global demand (such as the onset of the covid pandemic bringing lockdowns around the world) and supply (such as the Russian invasion of Ukraine) have resulted in significantly increased volatility in refining spreads. Russian diesel accounted for 34% of UK imports in each year 2019-21, but this had dropped to zero by mid-2022.

32. Moreover, refining spread is itself a poor proxy for profitability at the refining level, for two main reasons:

    (i) Refiners face significant costs other than the cost of crude oil. A better measure would need to take account of these costs.

    (ii) Refiners cannot simply input crude oil and produce an equivalent quantity of petrol and diesel. Rather their processes will involve creating

a range of other “cracks” (grades of refined product), each of which has its own sale price, often lower than petrol and diesel. A better measure would need to take account of the economics of the “whole barrel” output.

33. Taking these issues into account, we have looked at overall margins for the UK refiners over the past five years. We found that:

- Overall margins over the five years have been modest and below levels that would give us cause for concern about competition.
- Margins did become very high for a period in the first half of 2022. This was driven by forces outside the refiners’ control, primarily global supply constraints caused by the Russian invasion of Ukraine. These margins then returned towards their historical range at an average of 0.5% in August 2022. While we have analysed margin data up to August, the recent increase in the diesel refining spread suggests that margins will have moved higher again.
- For 2020 most UK refiners experienced negative margins (ie they were loss-making). This can be explained by the global reduction in demand for refined product, due to the covid lockdown-related reduction in mobility and other activity across the world. While less uniform, we also see low margins, occasionally turning negative, through 2021.
- Taking these impacts together, over the period since 2020 refiners have earned either low or negative margins; in effect, the margin spike in 2022 has done no more than even out the margin troughs in 2020 and 2021.

34. The UK refining industry faces stiff competition from refineries elsewhere in the world, with new capacity continuing to be added, particularly in Asia. The number of refiners in the UK, by contrast, has been in long-term decline, from 17 refineries in 1976, to 12 in 2000, to 6 today. Looking ahead, we can expect these tough globally competitive conditions to continue on the supply-side. We can also expect increasingly tough demand-side conditions with downward pressures on global demand, driven partly by the shift away from internal combustion engine vehicles. However, the UK will continue to be reliant on imports of diesel for the foreseeable future, which will bring resilience risks.

35. Given these factors, despite the high margins that we have seen in refining during 2022, we do not see evidence that UK motorists are facing negative outcomes arising from deficiencies in competition in the UK refining sector. As noted above, refined petrol and diesel trade on international markets, with prices determined by international supply and demand. Within the UK there is no incentive for UK refiners to set prices below international levels because they know they can sell their entire output at this price level; at the same time, they cannot respond to short-term peaks in margin by increasing their capacity due to the time and expense that the capital

investment required to do this would entail. This means that at times when global refining spreads are high, UK refiners will earn higher margins (and vice versa). Changing the structure of the UK industry, eg by breaking up refiners, even if practically achievable, would have no impact on this given the nature of the global market.

36. The question may be asked whether there are measures that should be taken to directly limit the margins that refiners are able to earn in periods when global prices for refined products are high. We would not, however, recommend any such measures, for three main reasons.

    (a) First, looking over a medium-term price horizon, and taking account of the at-times negative profit margins we have observed, there have to date been no overall excessive profits for UK refiners. Reducing their profit levels below sustainable medium-term rates would risk accelerating the reduction in refining capacity that the UK has seen over past decades.

    (b) Second, applying such restrictions in the UK would create an incentive for UK refiners to sell abroad, at best removing the benefit for UK consumers and at worst risking shortages in the UK; and

    (c) Third we do not know if the recent high margins will continue into the future, once the current imbalance of global supply and demand eases.

37. For these reasons, we do not think that there are interventions that could be made directly to change how the refining market is functioning in the UK, that would improve outcomes for motorists. Recognising the impact that high and volatile refining margins have on the prices consumers face at the pump, we will, however, consider whether there are wider steps that a government could take to mitigate the impact of any ongoing volatility.

(iv) Wholesale

38. The wholesaling of road fuel to retailers is carried out by refiners selling their own product, importers selling product from overseas refiners, or independent wholesalers selling product they have bought from UK refiners and importers. Wholesale supply is carried out under two principal models: unbranded supply, which typically only covers the supply of fuel; and branded supply, which typically includes branding and sometimes ancillary services such as access to a loyalty scheme or back-office support.

39. We are in the process of conducting our analysis of wholesale margins, so we will be in a position to give a view on these at a later stage of the market study. We will update on these in our next published report, which will include a focus on margins earned on fuel card purchases, and on biofuel sales.

40. Beyond questions of margin, we are also investigating issues relating to the general functioning of competition in the wholesale sector.

41. During the course of our Urgent Review, we heard general concerns that long-term supply agreements lacked the flexibility needed to respond to market forces and can bind retailers to strict terms, particularly regarding minimum volume commitments. However, the evidence we have obtained during the market study has suggested that contract lengths are typically up to five years; and that this length facilitates competition for branded supply by providing a longer period to recover the upfront rebranding costs which inevitably arise when a retailer switches some or all of its PFSs to a different brand. We have not so far seen specific evidence of suppliers enforcing volume commitments strictly (eg when demand fell drastically during the covid lockdowns) with adverse effects on competition or consumers. We welcome any further evidence from stakeholders on this issue.

(v) Retail

42. Petrol and diesel retailing in the UK is carried out via around 8,300 PFSs. These may or may not be part of a larger site. Fuel retailers often sell food, drink and other consumer goods via an onsite shop or kiosk.

43. PFSs are primarily owned and run under one of three key business models:

- Oil-company-owned – these are owned by an oil company (such as BP, Shell, Esso or Valero (Texaco)) which brands the PFS.
- Dealer-owned – these are owned and operated by dealers which can be branded or unbranded. They differ significantly in size with some dealers owning a single PFS and other businesses such as Rontec, Motor Fuel Group and Euro Garages operating large chains of PFSs.
- Supermarkets – these are owned and operated by grocery retailers such as Tesco, Asda, Sainsbury's and Morrisons and are generally located adjacent to their supermarket.

44. In the Urgent Review we provided an overview of the factors driving prices experienced by UK motorists at the pump. We outlined how competition between fuel retailers takes place principally at the local level, and how conditions vary to some degree in areas across the country.

45. We looked at the difference between retail prices and wholesale costs, and found no strong indication that rising retailer spreads had driven the significant rise in pump prices that had been seen in the preceding months.

46. The Urgent Review, did, however, highlight three further areas at the retail level of the supply chain that merited further investigation:

(i) How retailers determine the prices they set at the pump and, in particular, how retail prices track wholesale prices.

(ii) How prices vary at a local level and across regions – in particular it identified evidence to suggest that, on average, prices in rural areas tend to be higher than in urban areas, and that prices in England had been higher than in other nations and this warranted further investigation.

(iii) The role played by major supermarkets in road fuel retail markets, and whether there are ways that competition across different types of retailers can deliver further benefits for consumers.

47. During the course of our market study so far, we have carried out work that allows us to give some initial views on these three areas.

How retail prices track wholesale prices

48. To get a better understanding of how retail prices have tracked wholesale prices, and the development of retail profits as a component of pump prices, we have sought to move beyond spreads to understand retailer-level margins, and to extend our analysis over a five-year period.

49. We have first considered the retail fuel margin, which is the difference between the input cost of fuel and the selling price of the fuel, divided by total fuel revenues; this does not take into account any non-fuel operating costs. Looking at retail fuel margins from financial year 2017 onwards, we have found that:

- Annual retail fuel margins have grown over the period 2017-21. For supermarkets, these have risen on average from 4% to 7%, while for non-supermarkets they have risen on average from 6% to 8%. We estimate that this represents an increase of c2-3ppl on diesel and c3-4ppl on petrol, at October 2022 prices. Supermarkets have had a lower fuel margin than non-supermarkets across this period, but the gap has narrowed.

- Looking at monthly fuel margins between January 2020 to August 2022, however, we see a high level of volatility. In particular since March 2022 we see an inverse relationship (ie when one goes up, the other goes down) with refining margin, which as noted above has been very volatile over this period. These effects do not fully cancel each other out, however; retail spread plus refining spread is clearly at a higher level than previously since March 2022. Individual spikes arising from volatility during this period may be having a significant impact on the annual figures.

- In addition, the data we have seen for the period since March 2022 indicates that retail fuel margins have trended downwards before rising again in July 2022. We need more data to understand the overall picture for 2022.

50. There are several potential explanations for why fuel margins have increased. Retailers could be facing increases in non-fuel operating costs, meaning that increasing fuel margins are not equating to increasing operating margins. Alternatively, it could be that retailers are making higher operating margins from fuel; if so, this could be offset by lower margins in other parts of their business (ie grocery sales), or be increasing their overall profitability. We will be investigating this further and are seeking evidence from supermarkets and other stakeholders on these points.

51. Regarding how firms set pump prices, one concern we have heard, over a number of years, is that pump prices increase rapidly when wholesale petrol prices are going up, but fall back slowly when wholesale prices decrease: so-called “rocket and feather pricing”. We have therefore carried out econometric analysis to see whether this is the case.

52. Our analysis did not find evidence of generalised rocket and feather pricing before the start of 2022. When the analysis was extended to cover 2022, however, we did find evidence of some rocket and feather pricing this year, across all types of retailers. For both increases and decreases, we saw 80% of a wholesale price change passed through after six weeks, but within those six weeks some of the pass-through happened earlier for increases than for decreases. This effect was to some extent present in both petrol and diesel, but was more pronounced for the latter.

53. The evidence of rocket and feather pricing is driven primarily by the industry’s response to cost shocks in only two to three weeks around March and April 2022. Given that these weeks represented an unprecedented period of expansion in refining margin, driving an extremely rapid increase in wholesale prices, we need to examine pricing practices over a longer period to understand if this was a temporary aberration or the start of a new longer-term trend.

54. The fact that we observe stronger evidence of rocket and feather activity for diesel than for petrol suggests to us that these new patterns in retail pricing are driven by changes in the supply chain, rather than by any structural changes in the retail market. A likely contributing factor is the greater supply concerns relating to diesel due to the historical dependence of North West Europe on imports from Russia.

55. In examining the impact of rocket and feather pricing, a key question is whether this is associated with increasing margins. As set out above, we see some initial evidence that profit margin may be increasing among retailers, but we need to do more analysis to understand whether this is the case.

56. We will conduct further analysis to understand the recent emergence of some rocket and feather behaviour and how this develops. We will be seeking views from retailers on these issues.

How prices vary at local level and across regions

57. As well as variations in prices and margins over time, we also committed at the launch of our market study to examine local and regional variations in prices in the UK, and the extent to which weaknesses in competition, as opposed to the impact of underlying cost differentials, might be driving higher retail prices in certain parts of the UK.

58. In the Urgent Review we found that characteristics such as site location and region may be associated with different average prices. Specifically, we found that prices in rural areas are consistently higher than those in urban areas. One potential explanation for this is that rural PFSs face higher costs, eg because they supply lower fuel volumes compared to more urban ones or because they may experience higher transportation costs. An alternative explanation would point to weaker competition in some parts of the UK. Price levels, however, are not the only issue of concern to drivers; we also noted that higher prices may enable some lower volume sites to remain viable in sparsely populated/rural areas.

59. Looking at price variation, we have found that:

- Benchmarked against London, average petrol and diesel prices are lower in Northern Ireland, Wales, East Midlands, West Midlands, Yorkshire and Humber, and the North of England. However, with the exception of Northern Ireland (which is in a geographically unique position) these regional differences were relatively small.

- The number of local competitors has association with significant differences in price. For diesel, the addition of a competitor (where there had previously been none) is associated with a 0.46ppl reduction in price. For petrol the reduction is smaller at 0.26ppl. This effect is stronger where at least one competitor is a supermarket, and even more so when it is an Asda PFS.

- Rural PFS fuel prices are on average 1.2ppl higher than urban prices, for both diesel and petrol. However, we found that there was much wider variation within the rural and urban categories than between them.

- Considering the highest-priced 10% of non-motorway PFSs, we found that compared to the average PFS they were more likely to have no competitor at all and less likely to have a supermarket competitor (and substantially less likely to have an Asda competitor); our analysis found that these factors are likely to be associated with higher prices.

- Prices at PFSs located at motorway service stations are on average 17.2ppl higher for diesel and 16.0ppl higher for petrol than at urban sites. However, prices for motorway PFSs were much more clustered around the mean than was the case for non-motorway PFSs. Our pricing comparison does not at this stage take into account greater costs that may be faced by motorway PFSs and the impact of the much greater level of fuel card sales at these sights.

60. In the next part of the study we will seek to examine further the drivers of higher prices in the most expensive non-motorway PFSs, and in motorway PFSs as compared to non-motorway ones. This should give us a better understanding of the impact of weaker competition as a driver for higher pump prices at some PFS sites.

The role of supermarkets

61. As noted in our Urgent Review, average prices at supermarket PFSs are consistently below those at non-supermarkets. We have found that over the period of June 2017 to June 2022, supermarkets have priced on average 5.0ppl cheaper than other non-supermarkets for diesel and 5.1ppl cheaper for petrol. This price gap has varied significantly, particularly since the start of 2020, but appears to have since stabilised back to pre-2020 levels.

62. We have also carried out analysis to examine the impact of supermarkets on prices in a particular area. We found that the biggest downward impact on price of having an additional competitor came when that competitor is a supermarket: sites with at least one supermarket competitor will be on average 0.44ppl cheaper for diesel and 0.53ppl cheaper for petrol, relative to sites with no supermarket competitors. We also found that this effect is most pronounced when the supermarket is an Asda store (0.78ppl for diesel and 0.77ppl for petrol).

63. Taken together, these findings suggest that the presence of supermarket PFSs in a local area exert a noticeable downward pressure on fuel prices. We will do more work during the study to assess this, including assessing the impact of recent mergers in this area to determine whether they have had a noticeable impact on these competitive dynamics. As noted above, we will also be furthering our analysis of the development of supermarket PFS margins to assess whether, and if so why, we can observe a structural increase.

Next Steps

64. We welcome views from interested parties on the analysis and views set out in this initial update report, by 6 January 2023. Over the coming months we will continue to develop the further analysis identified in this report, seeking information from industry parties, including using our statutory information-gathering powers where appropriate.

65. We intend to publish a further report on our findings in Spring 2023, on which we will again invite comments. This will be followed by our final report, setting out our conclusions about the market, and any remedial action we feel is necessary, in advance of our statutory deadline of 7 July 2023.

2. Introduction

Request from the Secretary of State

2.1 On 11 June 2022, the then-Secretary of State for Business, Energy and Industrial Strategy (Business Secretary) wrote to the Competition and Markets Authority (CMA) requesting that we conduct an urgent review of the fuel market, as well as a longer-term market study into whether the retail fuel market has adversely affected consumer interests.[1]

2.2 The request followed the then-Chancellor of the Exchequer's 23 March announcement in his Spring Statement that there would be 5 pence per litre (ppl) reduction in the rate of fuel duty which would take effect from 6pm that evening.[2] The Business Secretary wrote to road fuel retailers on 23 March and again on 17 May 2022 asking them to ensure that the fuel duty cut was passed through to consumers. In response, many retailers and their representative bodies stated that retailers had passed through the reduction in fuel duty.[3] Motoring organisations, however, raised concerns that the fuel duty cut had not been passed through and that, more generally, retail prices did not consistently follow wholesale prices.[4]

Context

2.3 Increases in the cost of living have been of greater concern for the public in recent months, with the Consumer Price Index rising by 9.6% in the 12 months to October 2022.[5] According to the Office for National Statistics (ONS), 91% of adults in Great Britain reported an increase in their cost of living compared to a year ago.[6]

2.4 The largest upward contributions to the annual inflation rate in October 2022 came principally from electricity, gas, food and transport – principally, motor fuel.[7] The price of a litre of both petrol and diesel has gone up by over 60p in the last year. This leaves many households paying on average more than £500 per year extra to run a medium-sized petrol car, and more than half of motorists have already changed their behaviour in response. These price increases have a significant impact on household budgets, in particular for those on low-incomes and who live in rural areas.

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[1] Letter from Business Secretary Kwasi Kwarteng to the Competition and Markets Authority, June 2022.
[2] This reduced the fuel duty charged on a litre of road fuel from 57.95p to 52.95p.
[3] For example, the Petrol Retailers Association press release, dated 18 May 2022, PRA responds to Kwasi Kwarteng
[4] Petrol firms 'profiteering from energy crisis' by failing to pass on fuel duty cut, The Independent article, 17 May 2022.
[5] Consumer price inflation, UK - Office for National Statistics
[6] Throughout the period 26 October to 6 November 2022. See: ONS Public opinions and social trends
[7] Inflation and price indices - ONS, release date 19 October 2022.

2.5 In this context, the increase in fuel prices has been a clear source of concern for motorists.

CMA urgent review of the UK retail road fuel market

2.6 On 13 June 2022, the CMA launched a short and focused review of the UK retail road fuel market with the aim of providing advice to the government on steps that might to be taken to improve outcomes for consumers across the UK (Urgent Review).[8]

2.7 Given the Business Secretary's request that we explore whether the road fuel market had adversely affected consumer interests, the Urgent Review considered the following:

- the health of competition in the market including "geographical factors and localised competition";
- the extent to which competition has resulted in the fuel duty cut being passed on to consumers;
- the reasons for local variations in the price of road fuel; and
- any further steps that the government or the CMA could take to strengthen competition, or to increase the transparency that consumers have over prices.

2.8 Due to the urgency of the request from the Business Secretary, and the short time frame of the review, we conducted this review at pace with a focus on the price charged to consumers at the pump, against the backdrop of the fact that the price of a litre of both petrol and diesel had gone up by over 60p in the preceding year.

2.9 On 8 July 2022, we published our Urgent Review,[9] concluding that there were two principal drivers of rising pump prices over the preceding 12 months, particularly since the start of 2022:

- the rising cost of crude oil, which reached record levels in sterling terms in March 2022. The Urgent Review noted that the dollar-terms increase in oil prices over the last year accounted for around a third in the rise in road fuel prices (20ppl) with the fall in the value of sterling in that period adding a further 12% (7ppl); and
- a growing gap between the price of crude oil entering refineries and the benchmarked wholesale price of petrol and diesel leaving them (the

[8] The Urgent Review was conducted under the CMA's function to provide advice and information to ministers (s7. Enterprise Act 2002 (EA02)).
[9] Road fuel review.

"refining spread"). The review found that this accounted for just over 40% of the growth in road fuel prices (24ppl). Both demand-side factors (in particular, the post-covid recovery) and supply-side factors (in particular, the Russian invasion of Ukraine and the mothballing of refining capacity during the covid pandemic) appeared to have played a role in driving up the refining spread.

2.10 Despite concerns about fuel retailers profiting from the situation, the Urgent Review found that the gap between benchmarked wholesale prices and retail prices (the "retail spread") had not been a significant contributor to the overall rise in pump prices. The review also found that, on the whole, the fuel duty cut appeared to have been implemented, with the largest fuel retailers doing so immediately and others more gradually. The review did, however, find that there were significant differences in price between many rural and urban areas.

2.11 As part of the Urgent Review, the CMA was asked to advise on possible measures to increase the transparency of retail prices to consumers. Accordingly, the Urgent Review set out two areas to help increase retail price transparency, focussing on how an open data scheme could potentially help consumers more easily access and compare local pump prices and create new commercial opportunities for technology developers, and the potential for providing more information about pump prices on motorways.[10]

Market study

Scope

2.12 On the publication of the Urgent Review, and in the light of concerns that it identified, the CMA immediately launched a market study to examine the road fuel market in more depth, focussing on the following areas:

- refining, including why refining spreads examined in the Urgent Review are so high and what, if anything, ought to be done to bring them down;
- wholesaling, including the impact of long-term supply agreements between independent retailers and wholesalers, in the light of concerns that had been raised in the Urgent Review; and

[10] On 12 October the UK Government responded to the CMA's review. The Government agreed that an open data scheme would be a pro consumer measure and could have the potential to increase transparency around fuel prices. The Government noted that more work and analysis is needed to assess the merits of initiatives geared towards improving transparency around motorway pricing.

- retailing, including how far local price variation is being driven by weak competition and whether there has been a softening of competition from the supermarkets.

What we have done to date and next steps

2.13 We issued an Invitation to Comment on the market study on 8 July 2022 and we are publishing the responses to that alongside this report on our road fuel market study case page. We have also had meetings and calls with parties operating across the supply chain and have issued compulsory information requests to them using our statutory powers. Their responses have informed our analysis.

2.14 This initial update report sets out our emerging analysis from the market study and seeks views on this, so that we can feed this into our further work. We plan to publish a further report on our findings in Spring 2023 and our final report on the market study, including what action (if any) remedial action we feel is necessary, in advance of our statutory deadline of 7 July 2023.

2.15 We are publishing alongside this initial update report a notice of our decision not to make a market investigation reference (MIR) at this stage.[11]

2.16 The publication of this notice satisfies our statutory obligation, within six months of the launch of a market study, to consult on an MIR if we propose to make one or have received representations arguing that an MIR should be made;[12] or to publish a notice of a decision not to make an MIR. The decision not to make an MIR at this point is based on the fact that we have not received any representations arguing that a reference should be made[13] and the analysis we have undertaken so far. In particular that:

- in the refining sector, we have not seen evidence that motorists are facing negative outcomes arising from deficiencies in competition in the UK. While we have seen spikes in profitability in 2022, feeding through to increases in pump prices, these have been driven by global factors. While this is a cause for concern for consumers, given that it does not derive from deficiencies in UK competition, an MIR would not be an appropriate means to address these;

- with regards to the wholesale sector, our assessment, to date, is not sufficiently progressed to allow us to give an overall view of the state of

[11] Under section 131 of the EA02, the CMA can make an MIR when the findings of a market study give rise to reasonable grounds for suspecting that a feature or combination of features of a market or markets in the UK prevents, restricts or distorts competition.
[12] Sections 131A and 131B EA02.
[13] Under section 131A EA02, where the CMA receives representations that it should make an MIR, it is obliged to consult on whether it should do so. Where, as in this study, no representations are made, and the CMA does not propose to make an MIR, no such formal requirement to consult applies (Section 131B EA02).

competition in the wholesale sector. We will gather further evidence in relation to the wholesale sector and further develop our assessment of the evidence;

- in the retail sector, by contrast, we have seen some evidence that raises initial concerns about how competitive conditions have developed in the sector. At this stage, however, these are only initial concerns that may or may not be borne out as we continue our study. We need to carry out further work to understand better what is driving the increases in fuel margins in the retail sector that we have observed. Even if these concerns are borne out, however, we currently consider it unlikely that the behavioural or structural remedies that would be open to us following an MIR would provide a suitable means of addressing them, as opposed to other options available to us following a market study (eg recommendations to government).

2.17 The decision not to make an MIR at this point in time should not in any way be interpreted as the CMA finding no concerns in the sector, only that based on our current state of knowledge any potential concerns identified to date would not be best addressed through a market investigation at this time. We will continue to undertake further analysis into the areas outlined above, and we note that this decision does not fetter our discretion to make an MIR in the future, should we determine that this would be appropriate based on evidence and analysis that subsequently becomes available to us.

3. Background

Overview of sector developments

3.1 The road fuel sector in the UK has evolved over time, and will inevitably continue to do so, as technologies and behaviours change, and wider factors exert their influence upon it.

3.2 The UK and countries around the world have recently been through a series of global shocks, in particular from the covid pandemic and the Russian invasion of Ukraine, which have affected supply and demand for road fuel.

3.3 Even before this, however, the UK road fuel sector was undergoing significant change, with a number of long-term trends visibly transforming the sector.

3.4 The pressures of climate change will be a major force in these trends going forward, as shown through the commitments the UK government and devolved administrations and others around the world have already made with respect to the transition to low or zero carbon vehicles. This will have an impact on both the demand and supply side of the road fuel market over time, but it is not possible to predict with any certainty how this will impact on prices over the longer term.

Current global shocks

3.5 The global markets for road fuel and refined products are historically volatile and subject to significant price movements. Since 2020, however, the UK fuel sector has been affected by several significant global supply and demand-side shocks, which have been the key driver of variations in pump prices experienced by UK consumers.

3.6 The covid pandemic and associated lockdowns have had a clear impact on the market for road fuel in the UK. Reflecting a global trend,[14] demand for road fuel in the UK was much reduced through 2020,[15] with demand for petrol falling to its lowest level since 1963, and down by 22% on 2019. Diesel demand also fell by 17%, and prices for both were lower than in 2019.[16]

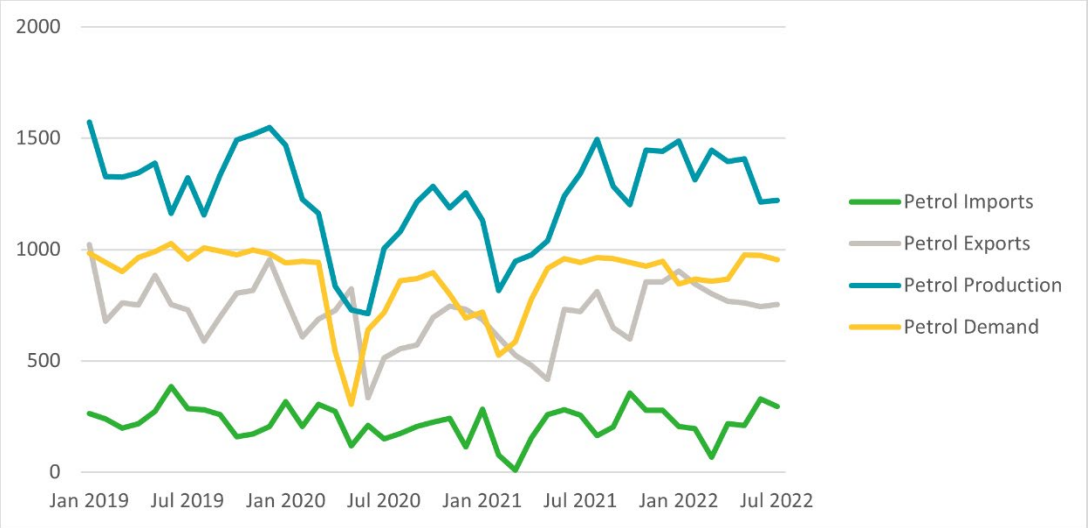
3.7 Refineries in the UK (in line with refineries around the world) reacted to lower demand by slowing production of petroleum products, from 60 million tonnes in 2019 to 50 million tonnes in 2020.[17] There was also a sharp fall in net imports of

[14] Short-Term Energy Outlook - U.S. Energy Information Administration (EIA)
[15] Digest of United Kingdom Energy Statistics (DUKES) 2021: Chapters 1 to 7
[16] BEIS - Weekly Fuel Prices
[17] Supply and use of petroleum products, Energy Trends September 2022, published by BEIS.

petroleum products, dropping to 6.0 million tonnes (from 12.1 million tonnes in 2019).[18]

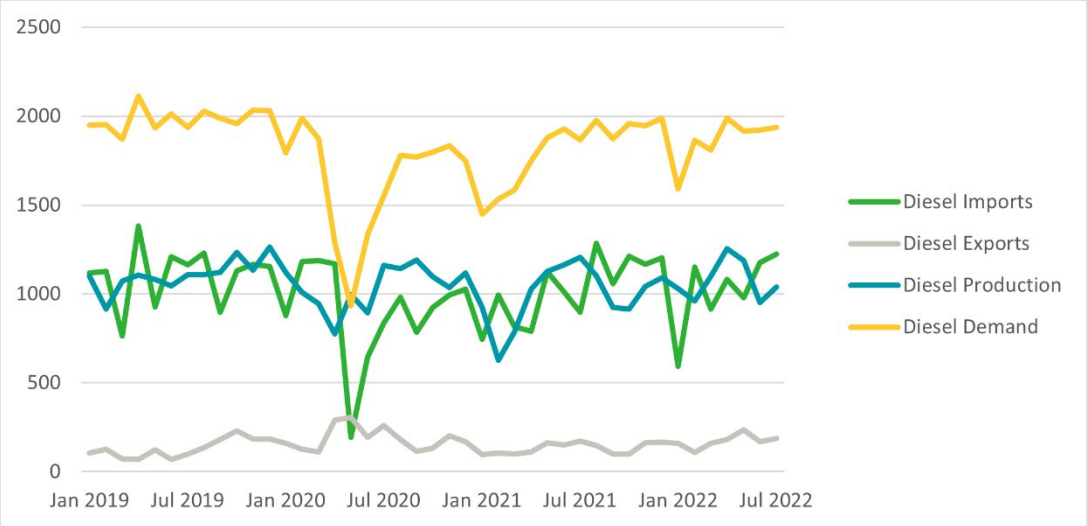
3.8 The recovery from covid saw demand for road fuel rise sharply in the UK, as can be seen in figures 3.1 and 3.2, showing reduced demand in 2020 followed by an increase throughout 2021.

Figure 3.1. UK monthly petrol production and demand (thousand tonnes)



Source: Energy Trends September 2022, published by BEIS

Figure 3.2. UK monthly diesel production and demand (thousand tonnes)



Source: Energy Trends September 2022, published by BEIS (Note: these figures only include that of road diesel)

3.9 The Russian invasion of Ukraine caused a significant global shock in February 2022, as sanctions limited the availability of Russian-refined product all over the world, including to the UK. The ensuing volatility has been a key driver of

[18] Digest of United Kingdom Energy Statistics (DUKES) 2021: Chapters 1 to 7

increased pump prices in 2022, and is expected to continue into next year, with both the UK and the EU introducing new restrictions on Russian oil exports this year.[19]

3.10 OPEC agreements on oil production levels among its members play an important market role. In 2020, OPEC and its allies agreed to limit crude oil production in response to the covid pandemic.[20] In October 2022, OPEC+ nations agreed a reduction in supply of crude oil of two million barrels per day, equivalent to 2% of global production.[21] These reductions to the global oil supply naturally feed through the supply chain and result in higher prices for consumers.[22]

3.11 Oil and wholesale fuel are traded in US dollars. The weakening of the pound (GBP) against the US dollar in recent times translates to increased costs for UK fuel retailers and subsequently increased prices for the consumer.[23]

3.12 Although the covid pandemic has now become a less significant driver of variations in pump prices, we can still expect global shocks to be the key driver of volatility in the future.

Developments in UK over recent decades

3.13 Taking a step back from recent and current global shocks, a number of long-term trends have been present in the UK market over recent decades.

3.14 A significant aspect of the sector in the last two decades has been the growth of the major supermarkets in the retail supply of road fuel. Over this period the number of UK petrol filling stations (PFS) has continued to decline. Total UK road-fuel demand has remained constant, while the number of vehicles on the road has increased. Road fuel blenders and importers in the UK wholesale sector continue to play an important role in the supply chain, while the number of UK refiners has decreased.

3.15 In 2013, the Office of Fair Trading (OFT) found that supermarkets had increased their market share of road fuel sold from 29% in 2004 to 39% in 2013. Since then, the big four supermarkets[24] have increased their share of the road fuel sold in the UK to 44% in 2021.[25] [26]

3.16 At the same time, the OFT identified in its 2013 report *UK petrol and diesel: An OFT Call for Information* a decline in the number of PFSs, falling from 10,867 in

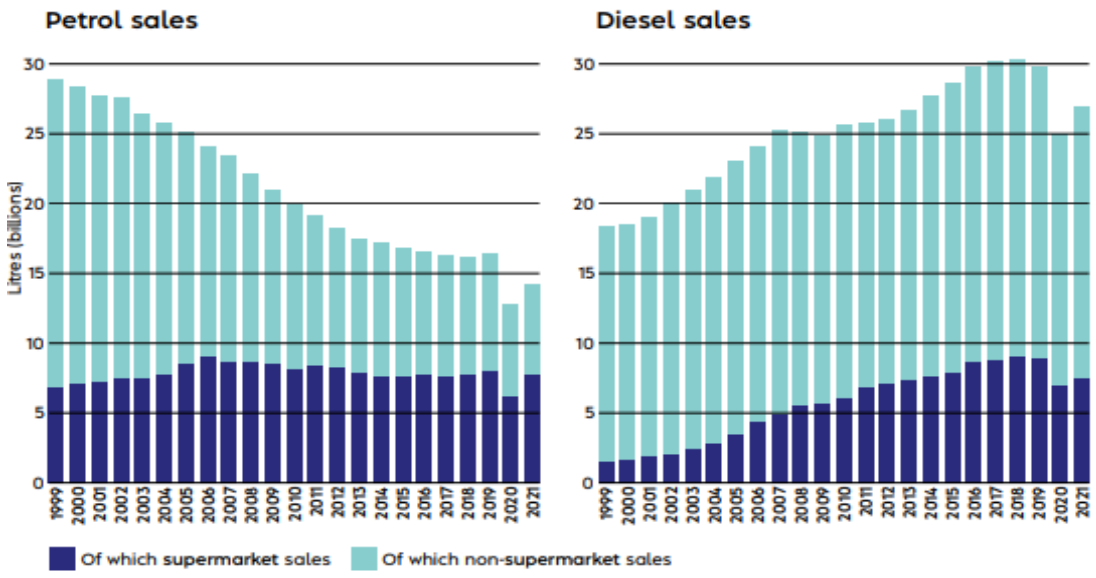
[19] UK sanctions relating to Russia - GOV.UK (www.gov.uk)
[20] OPEC 2020 Annual Report
[21] OPEC 33rd OPEC and non-OPEC Ministerial Meeting
[22] OPEC+ announce oil production cut - what it means for drivers | The RAC Media Centre
[23] October 2022: monthly exchange rates - GOV.UK
[24] Tesco, Asda, Morrisons and Sainsbury's.
[25] UK petrol and diesel sector An OFT Call for Information January 2013 OFT147
[26] Petrol Retailers Association (PRA) – Market Review 2021

2004 to 8,677 in 2012.[27] This decline in the number of PFSs appears to have slowed and stabilised in the period since 2012, with the number of PFSs in 2021 only slightly lower at 8,380.[28]

3.17 Total demand for road fuels has been relatively stable over the last two decades at an average 37 million tonnes per annum.[29] The size of the UK vehicle fleet has increased nearly every year since the end of World War II, and by 2018 had grown by more than a quarter compared to the end of 2001 and now stands at 39.4 million vehicles.[30]

3.18 Demand for petrol had until very recently decreased each year since 2000, whereas demand for diesel has been increasing. Demand for diesel was around twice that of petrol in 2018, not least as commercial fleets tend to use diesel-engine vehicles.[31] Figure 3.3 below shows petrol and diesel sales over the period from 1999 to 2021 by billions of litres. Figure 3.3 shows that petrol sales in 1999 exceeded diesel sales but have been consistently declining over the period while diesel sales have risen, exceeding petrol sales from 2004 onwards. The figure also shows that in 2020 there was a big reduction in sales of both petrol and diesel because of the pandemic lockdowns. Figure 3.3 shows that both petrol and diesel sales volumes recovered in 2021, though not to the same levels as the pre-2018 period and that diesel sales volumes have started to decrease from their 2019 peak of 30 billion litres to around 26 billion litres in 2021.

Figure 3.3: Fuel Sales (billions of litres)



Source: Forecourt Report 2022, Association of Convenience Stores

[27] UK petrol and diesel sector An OFT Call for Information January 2013 OFT147.
[28] Oil market overview, see PRA response to CMA invitation to comment.
[29] Road Fuel consumption and the UK motor vehicle fleet (2020).
[30] Road Fuel consumption and the UK motor vehicle fleet (2020).
[31] Road Fuel consumption and the UK motor vehicle fleet (2020).

3.19 The number of UK refineries has decreased, with the sector experiencing reductions in both capacity and overall production. Since the beginning of this century, three UK refineries have closed. Petroplus Holdings AG closed its Teeside refinery in 2009 and its Coryton refinery in 2012.[32] Murco Petroleum Limited closed its Milford Haven refinery in 2015.[33]

The impact of decarbonisation

3.20 As well as changes in supply, demand and retailing patterns for UK road fuel, wider imperatives around the impact of fossil fuel use in vehicles are beginning to have a significant impact on the sector.[34]

3.21 The impact of the UK's net zero ambition, and our transition away from fossil fuels, will have a transformational impact on the road fuel industry. Government programmes currently in place to support the UK's commitment to reach net zero greenhouse gas emissions by 2050, most notably the UK's intention to ban the sale of petrol, diesel and hybrid (also known as 'ICE' or Internal Combustion Engine) cars from 2030, will have major consequences for UK fuel refiners, wholesalers, retailers and consumers.[35]

3.22 The shift away from ICE vehicles will be met with an increased demand for electric vehicles (EVs) and charging outlets. While numbers of petrol stations have declined over previous decades, as mentioned in the preceding section, forecasts suggest that the UK will require at least 280,000 to 480,000 public charge points by 2030, to support EV road users, as set out in the CMA's Electric Vehicle Charging Market Study.[36]

3.23 Most stakeholders we engaged with as part of our study suggested that the global net zero transition, sometimes exacerbated by geopolitical instability, is already affecting the nature of the UK's fuel industry, noting in particular:

(a) the cost and compliance burden placed on industry to meet key government requirements in the fuel sector, such as the Renewable Transport Fuel Obligation (RTFO);[37]

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[32] UK petrol and diesel sector An OFT Call for Information January 2013 OFT147.
[33] See Puma Energy buys Murco Milford Haven oil refinery site - BBC News.
[34] See 2021 UK Greenhouse Gas Emissions Provisional Figures 2021 UK greenhouse gas emissions, provisional figures, page1 (CO2 emissions from transport rose 10% in 2021). NB figure for territorial CO2 emissions by fuel type are found in 2021 UK greenhouse gas emissions: provisional figures - data tables [Excel] – Table 2. Shows petroleum made up 132.9 of the total 341.5Mt of CO2 emissions for 2021, the equivalent of 38.9%. Rise in figures between 2020 and 2021 refers to a rise in overall CO2 emissions in transport by 10% (page 11) and a rise in the UK's total petroleum emissions from 121.8Mt to 132.9Mt – the equivalent of an approx.8% rise.
[35] See Government's Net Zero Strategy: Build Back Greener, October 2021.
[36] See Final Report – Electric Vehicle Charging Market Study, July 2021, page 5.
[37] See Decarbonising Transport – A Better, Greener Britain.

(b) the increasing demand for the import and use of renewable blending products (for example, the addition of 10% ethanol (E10) to petrol);[38] and

(c) volatility in the UK Emissions Trading Scheme (ETS) and carbon prices that flowed from the Russian invasion of Ukraine.[39]

3.24 Most significantly, stakeholders expected that the transition to net zero would lead to an overall decline in the demand for petrol and diesel in the UK in the medium term, significantly reducing the overall profitability of the UK's refining sector and potentially driving a rationalisation of fuel infrastructure, distribution channels, and production capacity, across the UK and Europe.

3.25 At the same time some stakeholders saw opportunities in the UK's low-carbon future, particularly in the expected demand for energy storage and infrastructure, and the supply of products that could be used to mitigate customers' carbon emissions such as Renewable Transport Fuel Certificates (RTFCs) and carbon offsets.

3.26 Similarly, the UK's current carbon budget relies on low carbon fuels and biofuels for delivering approximately a third of the UK's domestic transport carbon savings – and the need to supply these fuels will almost certainly impact the way refiners prioritise crack and blending operations in the lead up to 2050.[40]

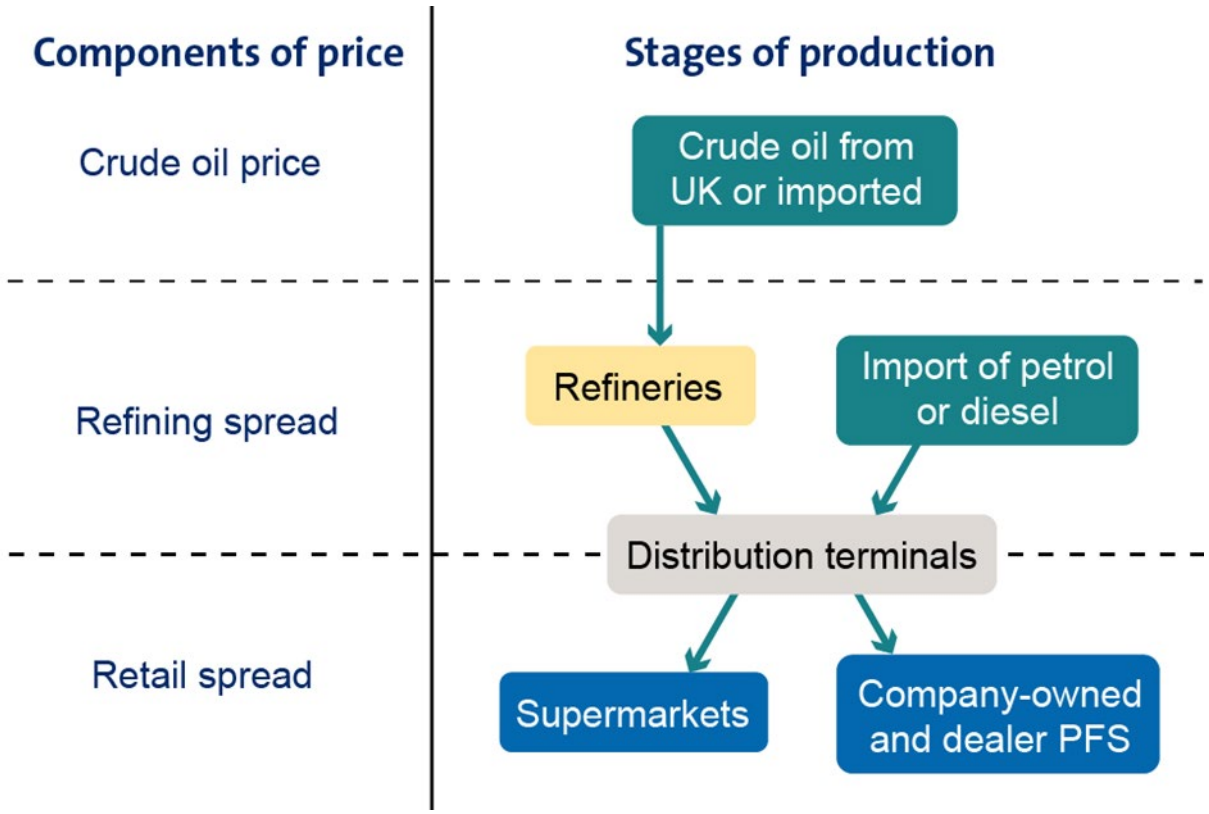
[38] See Decarbonising Transport – A Better, Greener Britain.
[39] See Russia-Ukraine conflict will boost demand for carbon offsets: executives | S&P Global Commodity Insights.
[40] Decarbonising Transport – A Better, Greener Britain, page 184.

4. The road fuel value and production chain

Value chain

4.1 In our Urgent Review, we noted that we would consider wider elements of the supply of road fuel in the UK, looking throughout the supply chain. This includes the refining, wholesale and retail segments of the sector, which are connected as outlined in Figure 4.1 below.

Figure 4.1: Road fuel value chain



4.2 We now provide an overview of each of these elements of the supply chain in turn.

Overview of refining activity

4.3 Petrol and diesel are produced by refining – this is the process of transforming crude oil into various petroleum products such as petrol, diesel and jet fuel. Refining can happen domestically, at a UK refinery, or it can happen overseas, with petrol and diesel then being imported. In the first half of 2022, around 22.7% of petrol and 53.1% of diesel used for road fuel in the UK was imported. An important change in the import market is in the origin of imported diesel; while Russian-refined diesel accounted for 34% of UK imports in each year 2019-21, this had dropped to zero by mid-2022 in response to the invasion of Ukraine. 58%

of petrol produced by UK refineries and 15.6% of diesel produced by UK refineries was exported over this period.[41]

4.4 There are six major refineries in operation in the United Kingdom:

- four in England: Stanlow Refinery, Cheshire, operated by Essar Oil UK Limited (Essar); Fawley Refinery, Hampshire, operated by Esso Petroleum Limited (Esso); Humber Refinery, North Lincolnshire, operated by Phillips 66 Limited (P66); and Prax Lindsey Oil Refinery, Killingholme, Lincolnshire, operated by State Oil Limited (Prax).
- one in Scotland: Grangemouth Refinery, operated by Petroineos Refining Limited and Petroineos Trading Limited (Petroineos).
- one in Wales: Pembroke Refinery, operated by Valero Energy Limited (Valero).

4.5 For domestic sales, refined products are either supplied directly from refineries or from inland terminals. A pipeline infrastructure in England and Wales, combined with railway and maritime shipping options, make it feasible for refineries to supply to other regions in the UK, although there are no pipeline connections between Scotland and England (for further detail, see Section 6).

4.6 Over time, the UK's refining capacity has reduced, with UK refineries facing competition from overseas operations. We consider broader trends in the industry over recent decades in Section 3.

4.7 We discuss competition in the refining sector in Section 6 of this report.

Overview of wholesaling activity

4.8 Retailers can either purchase road fuel from independent wholesalers, who themselves purchase from refiners and importers, or directly from integrated refiners and importers who have a wholesale operation.

4.9 The road fuel industry does not necessarily identify a separate wholesaling segment, rather it distinguishes between 'midstream' activity (including primary distribution and blending fossil fuel with renewables) and 'downstream' activity (including, in addition to retail, services provided by brand owners and secondary distribution). For the purposes of this report, we refer to the supply of fuel to retailers as 'wholesale supply', or the 'wholesale market', to distinguish it from the retail market where retailers supply fuel to final customers.

[41] Provisional figures based on BEIS (2022), Supply and use of petroleum products, Table 3.4.

4.10 We have identified two principal models of wholesale supply:

- unbranded supply, which typically covers the supply of fuel only, and where retailers sell fuel under their own brand.
- branded supply, which typically includes the supply of fuel plus a branding package and may include ancillary services, such as marketing, access to a loyalty scheme and fuel cards.

4.11 Some wholesale suppliers also operate PFSs.

4.12 We set out our initial discussion of competition in the wholesale market and the further work we plan in Section 7 of this report.

Overview of retailing

4.13 Retailing is the activity of selling petrol and diesel directly to motorists, overwhelmingly at PFSs, which may or may not form part of a larger site.

4.14 As noted in the preceding chapter there are a large number of PFSs across the UK, with 8,380 present in 2021.[42] These vary significantly in their business model and the nature of their location, and customers differ in how they pay for fuel.

Retail business models

4.15 As noted in our Urgent Review, PFSs are primarily owned and run under one of three business models:

(a) Oil-company-owned: these are owned by an oil company (such as BP, Shell, Esso or Murco) which brands the PFS. They may be operated by the company (or its retail subsidiary) or by a dealer, in which case it is the dealer setting the pump prices.[43]

(b) Independents: these are owned and operated by independent dealers which can be branded or unbranded (see Figure 4.2 below).[44] They differ significantly in size with some dealers owning a single PFS – one stakeholder told us that this is the case for 87% of independents – and other businesses such as Rontec, Motor Fuel Group (MFG) and Euro Garages operating chains of PFSs.

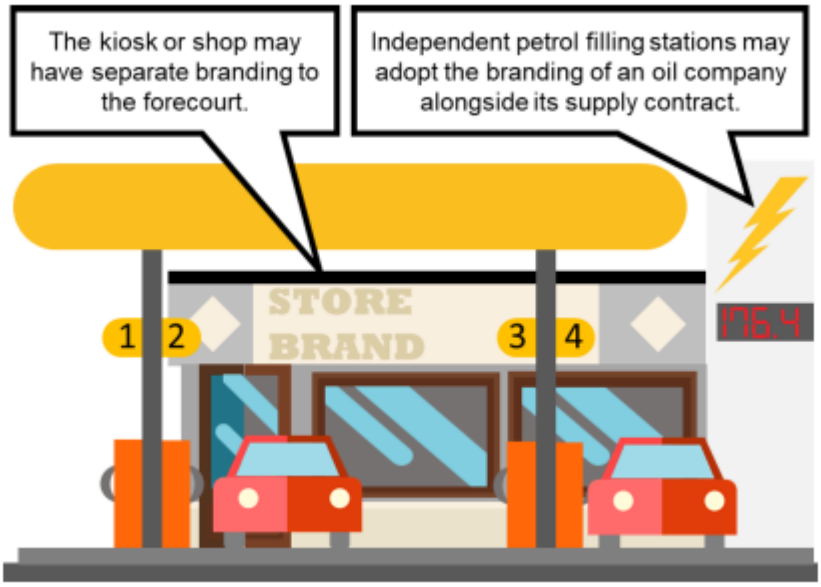
[42] Source: Oil market overview, see PRA response to CMA invitation to comment.
[43] The former is usually known as ‘company owned, company operated’, or ‘COCO’ while the latter is usually known as ‘company owned, dealer operated’, or ‘CODO’.
[44] These are usually referred to as 'dealer owned, dealer operated' (DODO). Independently owned PFSs are usually supplied under an agreement with an oil company whose name appears on the brand sign but also include unbranded PFSs with no oil company identification. This means that when the PFS is branded ‘Shell’ for instance, it is not necessarily operated by it.

(c) Supermarkets: these are owned and operated by grocery retailers such as Tesco, Asda, Sainsbury's and Morrisons and are generally located next, or close, to their supermarket.

4.16 Oil company sites represent 20% of volume and 18% of PFSs. Independents make up 37% of volume and 64% of PFSs. Supermarkets meanwhile have 44% of volume, but only 18% of sites.[45]

4.17 Fuel retailers frequently also sell food, drink and other consumer goods on the same site, through a kiosk or shop. The way in which PFSs may be branded and appear to the public is illustrated in Figure 4.2 below.

Figure 4.2: **Branding of PFS: forecourt and shop**



Source: CMA Analysis

4.18 Fuel retail operations vary in a number of ways across these different business models, for example with supermarkets typically having the highest sales volumes per site and making a greater proportion of revenue across their business from non-fuel sales.

Urban and rural differences

4.19 As we observed in our Urgent Review, a competitive retail fuel market can be particularly important to rural communities, which tend to be more reliant on cars as a means of transport. Those living in rural villages, hamlets and isolated dwellings travel on average 2.5 miles by car for every one mile travelled by those living in urban conurbations.[46] We also noted that some remote and rural areas may not have enough consumers to support larger petrol stations and may need to

[45] Source: Petrol Retailers Association (PRA) – Market Review 2021. Numbers may not add up due to rounding.
[46] Source: Department for Transport, National Travel Survey, Table NTS9904

charge higher prices to enable them to remain viable. Larger urban sites may be able to spread these overheads over a higher volume of fuel sales, leading to lower pump prices overall.

4.20 By way of further illustration of the comparative volumes being sold, the OFT found in its 2013 report *UK petrol and diesel sector* that there were wide differences in average volumes based on site location, with the average rural site selling 1.9 million litres per year, compared to 4.8 million litres at 'urban transient' sites (main roads in urban areas) and 8.9 million litres at sites on motorways.[47] In 2022, the CMA's Urgent Review found that the average volume sold by oil company owned sites was 4.8 million litres, for an independent 2.5 million litres for a supermarket 10.6 million litres.[48]

4.21 We consider local and regional variations in prices in the UK further in Section 8.

Means of purchasing road fuels

4.22 As noted in the 2013 OFT report, there are generally two ways to purchase road fuels in the UK:

(a) most petrol or diesel is bought from retailers at the advertised pump price using cash or credit or debit cards.

(b) commercial drivers are more likely to purchase diesel and often use fuel cards, where the price paid is not the advertised pump price and is often lower than the pump price.

4.23 The OFT noted that a company may, for instance, have a fuel card that allows it to pay for fuel on a 'Platts plus' basis,[49] or, alternatively, the agreement might be that the price is the advertised pump price minus a certain amount.[50] Business customers may therefore be paying less than non-business customers. Fuel cards are typically up to 10% of the volume of fuel sold by supermarkets, 10% to 20% for the large retail groups and up to around 80% for motorway retailers.

4.24 We consider competition in the retail market in detail in Section 8 of this report.

[47] UK: petrol station volume by owner type 2021 | Statista

[48] Source: Petrol Retailers Association (PRA) – Market Review 2021.

[49] 'Platts plus' refers to a type of pricing where the price paid for fuel is the value of a commodity price assessment provided by S&P Global (Platts) and an additional amount that reflects the retailers' own costs and to give them a margin.

[50] Source: UK petrol and diesel sector An OFT call for information January 2013 OFT147

5. How prices and costs have changed across the value chain

5.1 In order to understand what factors have been influencing changes in pump prices, we have looked at the levels of, and trends in, prices of petrol and diesel at the pump, and broken these down into various parts:

(a) the global price of crude oil;

(b) the pound to dollar exchange rate (as crude oil and refined fuel are traded in US dollars);

(c) biofuel prices and other costs related to the Renewable Transport Fuel Obligation (RTFO);

(d) the fuel duty charged by the government (currently 52.95ppl);

(e) VAT charged at the end of every forecourt fuel transaction (currently at 20%);

(f) refining spread (which includes operating costs and margins that refiners make); and

(g) retail spread (which includes retailer costs and margins and the cost of transportation to the PFS).

5.2 We have obtained data on pump prices, the price of crude oil, prices of biofuels, CIF[51] benchmark prices, as well as exchange rates, fuel duty and VAT for the period January 2015 to August 2022 (inclusive).[52] This has enabled us to calculate, for both petrol and diesel:

(a) refining spreads – the difference between the CIF benchmark price and the price of crude oil, calculated for the amount of crude oil contained in 1 litre of petrol/diesel sold at the pump; and

(b) retail spreads – the difference between fuel prices at the pump net of fuel duty and VAT, and estimated wholesale costs, which are based on the benchmarked cost of diesel and petrol, and the cost of biofuel.

5.3 The retail spread includes retailer costs (such as staffing and utilities), and transportation costs as well as retailer profit, and as such is not a measure of retail margins. Nonetheless, it gives an indication of retailers' financial performance and profitability and can show more up to date trends than margin data.

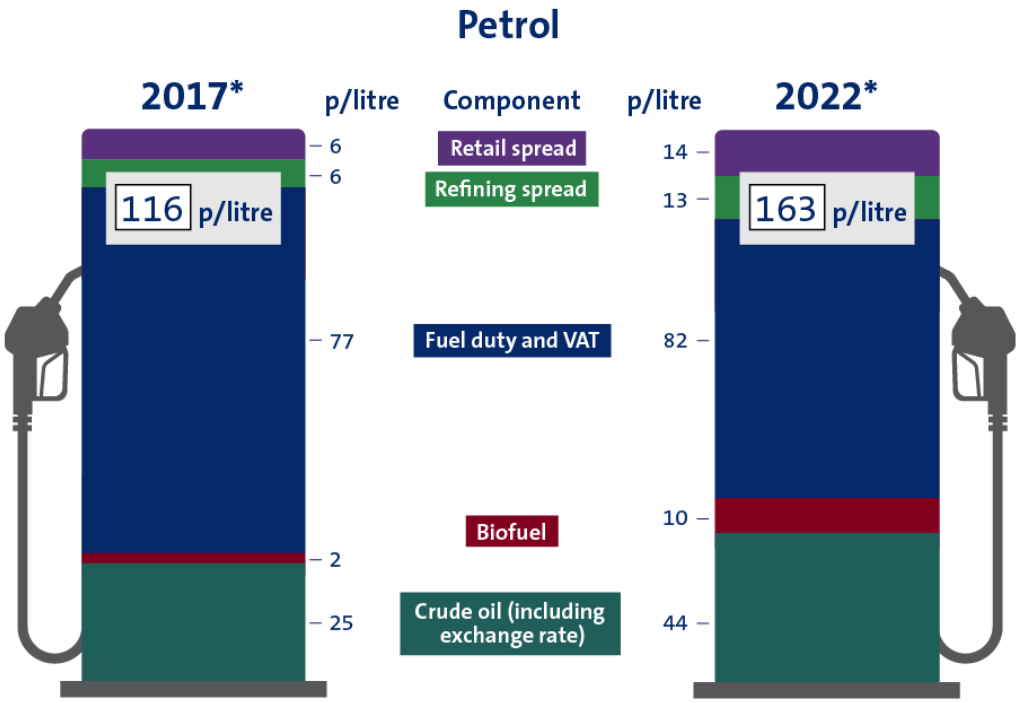
[51] CIF stands for Cost, Insurance and Freight and is a commonly used pricing standard.
[52] See Annex A – Description of data and spreads analysis for more details on the data we have obtained.

Trends in retail prices and cost components

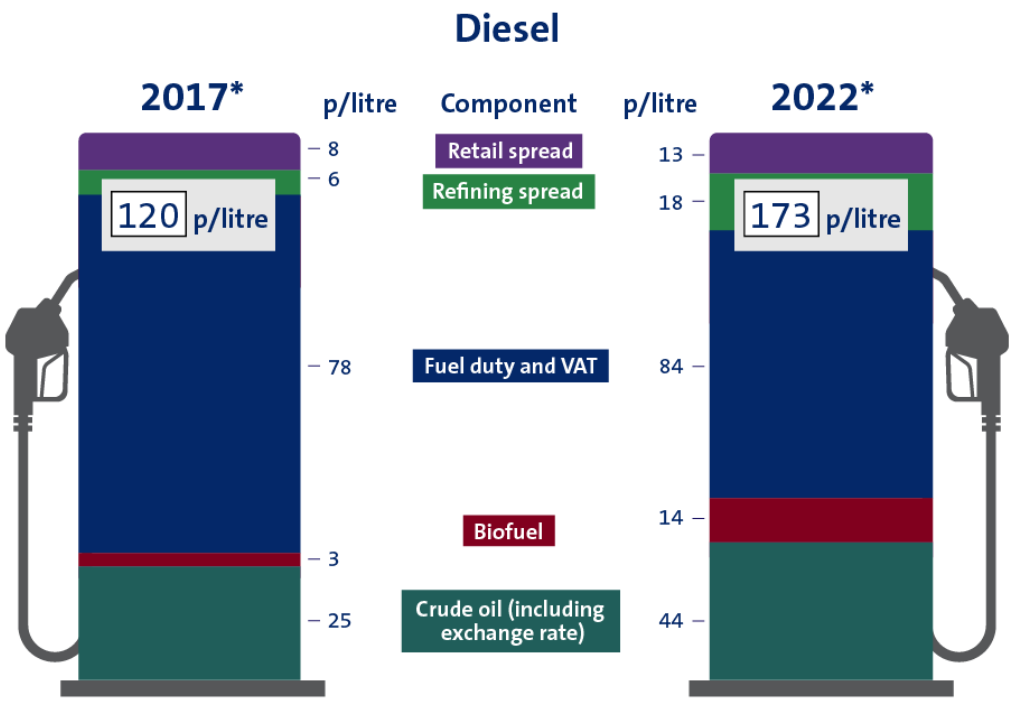
5.4 Figure 5.1 shows average prices at the pump for petrol and diesel for the years ending October 2017 and October 2022, broken down into broad component categories. As the figure shows, the crude oil, biofuel, refining spread and retail spread components have grown between 2017 and 2022 for both petrol and diesel, and each of these components makes up a greater share of the pump price in 2022 than in 2017, while the share of fuel duty and VAT has fallen between 2017 and 2022.

5.5 In this section, we are looking at nominal prices - we would expect nominal prices and costs to increase over time due to the impact of inflation.[53]

Figure 5.1: Average pump price with components for petrol (top) and diesel (bottom), 2017 vs 2022, pence/litre



[53] In particular, £1 in October 2017 is equivalent to £1.21 in October 2022 in nominal terms. See Annex A – Description of data and spreads analysis for more details on the impact of this on retail spreads.



Source: BEIS, Platts, Bloomberg and Bank of England data, and CMA analysis.
Note: *Data is averaged over 52 weeks as follows: 2017 includes 52 weeks in the period November 2016 – October 2017, and 2022 includes 52 weeks in the period November 2021 – October 2022.

5.6 Figures 5.2 and 5.3 below show the pump price alongside its components for petrol and diesel respectively. Petrol and diesel average retail prices were in the range 100 to 120ppl in the period 2015–2017, then increased to 120 to 140ppl in 2018–2019. Average retail prices dropped significantly in the first half of 2020 during the COVID-19 pandemic. Prices have been increasing in 2021 and 2022, reaching peaks of 190 to 200ppl.

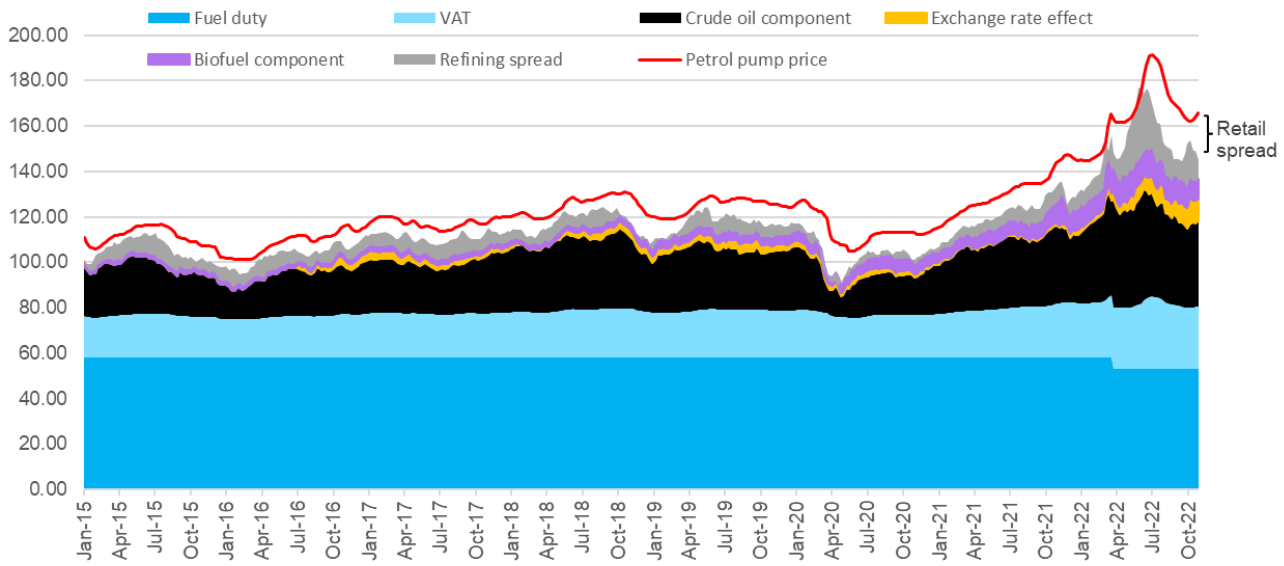
5.7 As shown in Figures 5.2 and 5.3, the most significant components of pump prices are the cost of crude oil (and corresponding exchange rate fluctuation), fuel duty and VAT. Of these, fuel duty is set at a fixed level, which only changed once over the period and as such, does not explain weekly variation in retail prices. VAT is a fixed percentage which is added onto the price at point of sale, and only varies in amount when there is variation in underlying costs.

5.8 As both petrol and diesel are derived from crude oil, variations in retail prices for both are explained to a great extent by changes in the cost of crude oil as well as exchange rate fluctuations. The price of crude oil has shown significant fluctuation over the period 2015–2022, driven by global supply and demand factors. In addition, recent peaks in the price of crude oil have been exacerbated in the UK by the falling value of the pound against the US dollar, which has further contributed to increasing retail prices.

5.9 Under the RTFO, the required percentage of fuel that comes from renewable and sustainable sources has been increasing over time. In addition, the prices of

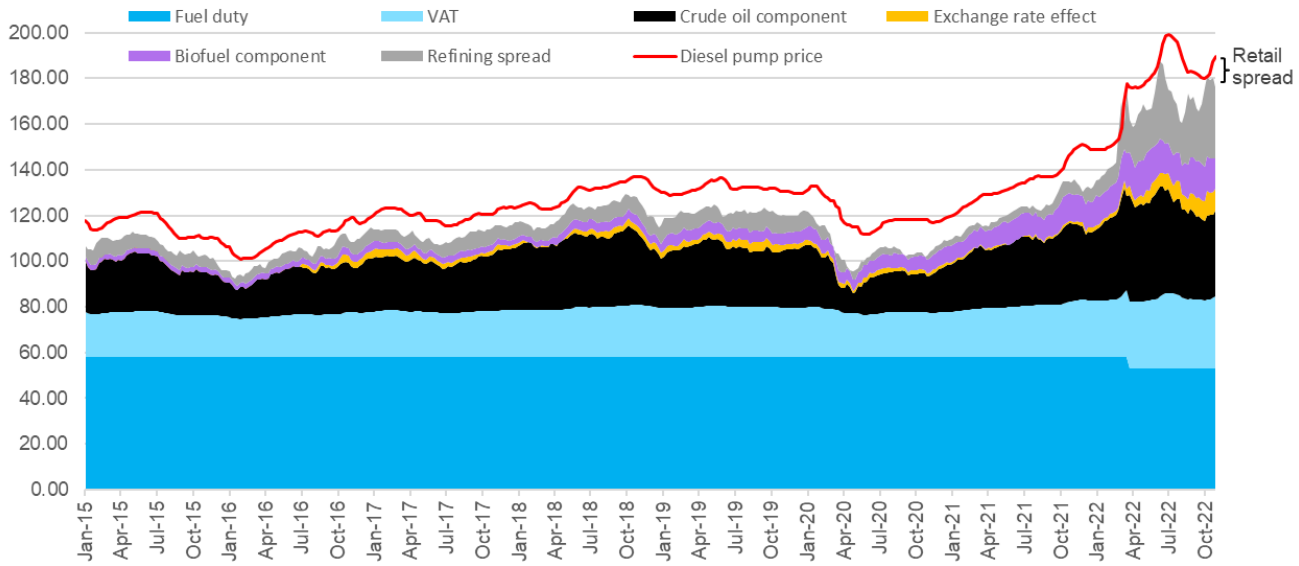
biofuels have shown greater fluctuation and have been on an increasing trend, particularly since early 2020. This means that over the period since 2020 the cost of biofuels (and associated arbitrage and levies) has become a more significant component of the retail price for both petrol and diesel.

Figure 5.2: Petrol pump price with components, January 2015 – October 2022 (inclusive), pence/litre



Source: BEIS, Platts, Bloomberg and Bank of England data, and CMA analysis.
Note: The exchange rate effect is calculated relative to 7 June 2021, and it is negative in some periods.

Figure 5.3: Diesel pump price with components, January 2015 – October 2022 (inclusive), pence/litre



Source: BEIS, Platts, Bloomberg and Bank of England data, and CMA analysis.
Note: The exchange rate effect is calculated relative to 7 June 2021, and it is negative in some periods.

5.10 Figures 5.2 and 5.3 above also show that the refining spread has historically been a relatively small component of the pump price, generally below 10ppl in the majority of weeks over the period 2015–2019. Refining spreads fell below this level and were below 5ppl (and even below zero in some weeks) in 2020 and most of 2021. However, refining spreads increased in early 2022 and reached record highs in the first half of 2022, then reduced to around 10-15ppl at the start of August 2022.

5.11 The refining spread for diesel has been climbing steeply in September and October 2022, reaching a peak in mid-October and remaining above 30ppl at the end of the month. On the other hand, the refining spread for petrol remained below 15ppl in September, then increased somewhat in mid-October before reducing below 10ppl at the end of the same month. See Section 6 for more details and analysis of the refining segment.

5.12 In relation to retail spreads, Figures 5.2 and 5.3 show that these have typically been a relatively small component of the pump price for both petrol and diesel, ranging from 5 to 10ppl in the majority of weeks over the period 2015–2019. Retail spreads increased in the first half of 2020 coinciding with the first covid lockdown and a significant fall in both the price of crude oil and UK demand for petrol and diesel. Since the end of 2021 there has been increased volatility in retail spreads, including periods of negative values as well as record highs. Retail spreads reached record highs in August 2022 and have since fallen. The retail spread for diesel has remained 5 to 10ppl below that of petrol in the weeks since August. Section 8 has more details and analysis of the retail sector, including analysis of margins.

6. Refining

Introduction

6.1 The costs incurred and profits taken by refiners influence the price of petrol and diesel paid by motorists.

6.2 In our Urgent Review we found that the 'refining spread' – that is, the difference between the price of crude oil and the benchmarked wholesale price of petrol and diesel – had grown substantially in the months preceding the review, to account for around 30p-35p (15-20%) of the pump price, compared with an average of 10p (7.5%) in 2021, significantly above the long-term historical trends for petrol and diesel.

6.3 We noted that both demand-side factors (in particular the post-covid recovery) and supply-side factors (in particular, the Russian invasion of Ukraine and the mothballing of refining capacity during the covid pandemic) appear to have played a role in driving up the refining spread.

6.4 We therefore said that in our market study we would undertake work to assess what is driving these high spreads, to increase our understanding of how long they are likely to persist, and to assess whether there are measures that could help to address or guard against future spikes.

6.5 During the market study we have sought to establish how the refining spread has evolved since the Urgent Review. However, as discussed in paragraph 6.41 we received evidence that examining the spread that refineries earn from petrol and diesel is a poor proxy for their overall financial performance. As such, we have focused our analysis on the overall margins of the six major UK refineries since 2017. We have found that:

- over the period, margins have been volatile and varied significantly over time, but average margins appear low.
- there was a spike in margins in the first half of 2022 driven by decreased supply of refined products which coincided with the Russian invasion of Ukraine. This spike in margins appears to have then abated with margins returning to relatively low levels in July and August 2022. While we have analysed margin data up to August, the recent increase in the diesel refining spread suggests that margins will have moved higher again.
- 'whole of barrel' margins (see below) are significantly below the refining spreads reported in the Urgent Review.

6.6 At this stage, our preliminary view is that refiners have earned higher profits than usual in 2022, but these have been offset by the lower or negative profits that the

refiners have made during 2020 and 2021. Overall, refiners have not made excessive profits over the past five years. While refining margins may continue to be subject to volatility due to global factors, including periods of higher profitability, and this is likely to result in price volatility at the pump, we do not believe that these stem from weaknesses in competition in the UK refining sector. Rather, they are driven by our exposure to global factors. Given this exposure, and in particular the historical reliance of North West Europe on Russia for diesel imports, we note that this raises potential resilience concerns for the UK economy.

The refining sector

6.7 In this section we describe the production processes associated with refining and the economics of refining, including some of the most significant costs incurred by refineries. We then consider geographic aspects of the sector, including the locations of the six major refineries in the UK, and domestic and international sales.

Production processes and economics

Production processes

6.8 Petroleum refining is the process of transforming a primary input (crude oil) into various petroleum products such as petrol, diesel and jet fuel. The process of refining is conducted through various stages (distillation, cracking, treating, blending and reforming) to convert heavy crude oil into the lighter and more valuable petroleum products.

6.9 The first stage of all refineries is to separate the heavy crude oil into its lighter components. This is done through a process called distillation. Distillation is conducted by passing crude oil through a heated furnace, upon which the resulting vapours and liquids (called fractions) are collected in a distillation unit. Inside the distillation unit, the lighter fractions (with low boiling points) move higher while the heaviest fractions (with higher boiling points) settle at the bottom.

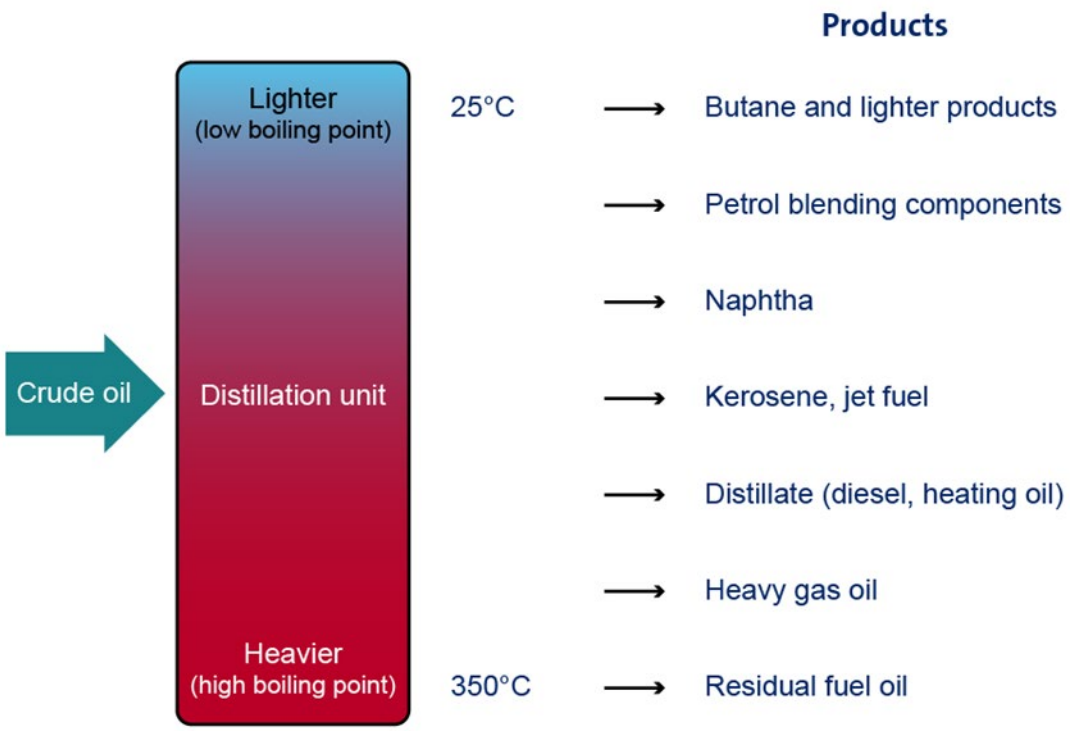
6.10 As shown in Figure 6.1 the products can be classified into three categories:

(a) light fractions: These include liquefied petroleum gases (LPG) such as butane, petrol and naphtha.

(b) middle fractions: These include kerosene, jet fuel, distillates (diesel, fuel oil).

(c) heavy fractions: These include heavy gas oil and residual fuel oil, yielding finished products such as lubricating oils, wax, asphalt and petroleum coke.

Figure 6.1: Crude oil distillation unit and products



Source: CMA's replication from U.S. Energy Information Administration (EIA)

6.11 The light and middle fractions are generally more profitable than the heavier fractions. For heavier crude oils, refineries incur higher additional costs to "crack" the heavier fractions into the higher value petrol and diesel products. This is done through vacuum distillation, fluid catalytic cracking ("cat cracking"), hydrocracking, or delayed coking.

Economics of refining

Type of crude oil

6.12 Crude oil is not a homogenous product. The two primary qualities that differentiate crude oil are its density (sometimes referred to as weight) and its sulphur content (also referred to as "sweetness"). Crude oils with low density ("light") and low sulphur content ("sweet" as opposed to "sour") tend to be more expensive, due to higher yield of light fractions and lower costs of removing sulphur to comply with regulations.[54]

6.13 A crude oil assay[55] is a combination of laboratory and pilot-plant data that characterize a particular crude oil. At the minimum, the assay will include the distillation range of different fractions and their respective boiling points. The crude

[54] US Environmental Protection agency, Gasoline Standards
[55] Expert Crude Oil Assay.

oil assay helps to identify the compatibility of that specific crude oil with oil refineries, the expected product yield, and to determine whether it is suitable for environmental and regulatory standards in the country of production and sales. However, the crude oil assay is estimated from laboratory and pilot-plant samples from each oil field. Individual shipments from those oil fields may vary slightly from these estimates.

6.14 Based on the responses to our requests for information from the six main refineries in the UK, we understand that they generally use a blend of a variety of crude oils sourced from all over the world (including Norway, the United States and the Middle East). The blend is chosen based on expected yields and prices.

Crude oil pricing

6.15 Crude oil is priced on the basis of various benchmark crudes which have commonly posted prices and are traded in well-known locations. These are Brent, West Texas Intermediate (WTI) and Dubai.

6.16 The Brent benchmark is based on a blend of crude oil extracted from the North Sea, comprising of the Brent Blend, Forties Blend, Oseberg, Ekofisk, and Troll crudes, commonly referred to as BFOET.[56] Around 78% of globally traded (ie exported) crude oil is priced relative to the Brent benchmark.

6.17 Specific crude oils, varying in type and location, are generally traded at agreed premia or discounts to the given benchmarks. The benchmark which is generally used is dependent on the destination of export. WTI is generally used for US and Canadian destinations, Dubai for some Asian destinations, and Brent for the rest of the world.[57]

Costs for a refinery

6.18 The costs for a refinery can be classified into investment costs and operating costs.[58]

(a) Investment costs: These refer to the costs of investment of a new refinery or upgrading existing facilities and include the costs of process units, utilities, security and environmental facilities, storage facilities, civil works, buildings, and other infrastructure. Based on the responses to our requests for information from the six main refineries in the UK, the mean replacement cost for each of the refineries is approximately £4.7 billion.

[56] Brent the world's crude benchmark, ICE.
[57] Platts crude benchmark analysis index.
[58] Economics of Oil Refining, Jean-Pierre Favennec.

(b) Operating Costs: These are the costs incurred for operating a refinery, and can be divided into variable costs (which increase directly with output) and fixed costs.

(i) Variable costs: in addition to the variable cost incurred from purchasing crude oil, refineries incur a range of other costs including:

(1) chemicals which are added during processing for corrosion prevention, oxygenates for octane number improvement, cetane number improvers, pour point depressants for gas oil, and any other additives;

(2) catalysts used in the hydrocracking, catalytic cracking and other processing units;

(3) fuel costs (eg to heat the furnace for the distillation process) such as Natural Gas Liquids (NGL), sourced externally, and by-products from previous refining (eg Waste Gas, Fuel Oil or Petroleum Coke). We understand that there has been a significant increase of fuel costs over the period from early 2020 to mid-2022. This is primarily due to the rapid increase in the price of NGLs;[59] and

(4) working capital charges to maintain inventory.

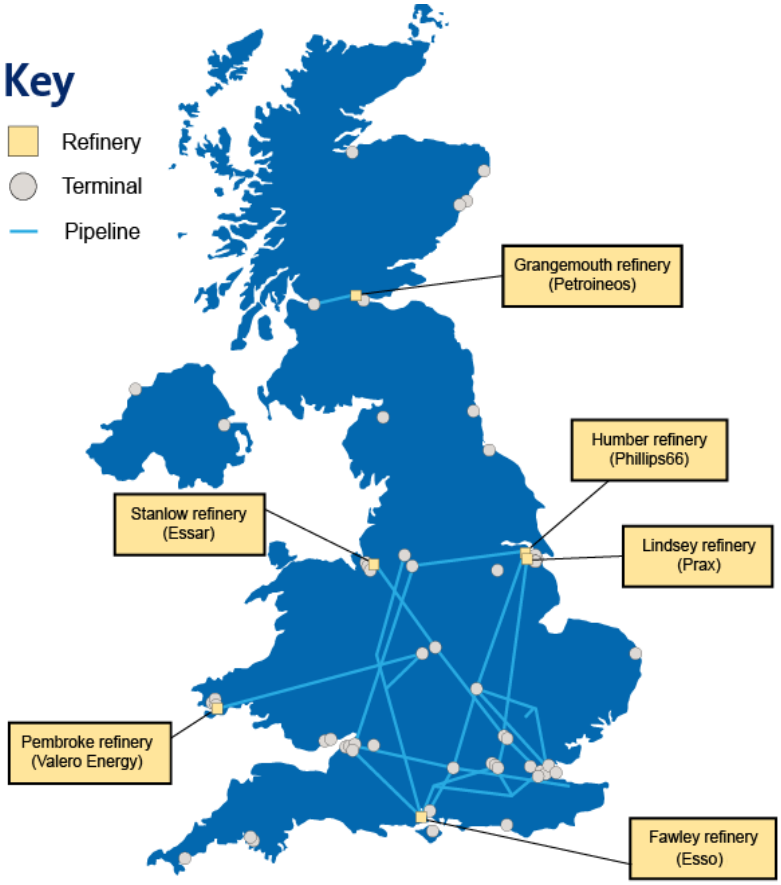
(ii) Fixed costs: maintenance, overhead costs (eg administrative costs) and costs of capital (eg interest payments on loans).

Geographic aspects of the sector

6.19 There are six major refineries in operation in the United Kingdom. Four of them are located in England, one is located in Scotland and the other in Wales. This is illustrated in the map in Figure 6.2 below.

[59] 3 charts show Europe's unprecedented natural gas crisis, CNBC article, dated 1 August 2022.

Figure 6.2: Location of major refineries, terminals and pipelines in the UK



Source: CMA replication of BEIS data

6.20 Except for two refineries, Humber Refinery and Lindsey Oil Refinery in the Humber region, all are located in different regions of the United Kingdom. Nevertheless, despite the lack of any pipeline connection between Scotland and England, the pipeline infrastructure in England and Wales, combined with railway and maritime shipping options, makes it feasible for the major refineries to supply to other regions.

Crude oil receipts

6.21 All of the UK refineries are located close to coastal terminals, which means that they are able to receive crude oil, either domestically produced from the UK continental shelf (UKCS)[60] or imported from overseas producers via oil tankers.

6.22 The refineries' demand for specific types of crude oil means that most crude oil produced in the UK is exported to overseas refineries rather than used as throughput for UK refineries.[61] In 2021, around 38 million tonnes of crude oil were produced in the UKCS, of which only 6.8 million tonnes (18%) were used by UK refineries.[62] The rest was exported overseas. The top three destinations for

[60] This can either be via direct pipeline connections or via tankers.
[61] Digest of UK Energy Statistics (DUKE) Annual data for UK, 2021, page 18.
[62] From National Statistics publication Energy Trends produced by BEIS.

exports of crude oil are the Netherlands (52.7% of crude oil exports), China (15.7%) and Germany (9.8%).[63]

6.23 More than 80% of crude oil used as throughput for UK refineries is imported from overseas markets.[64] The top three countries of origin are Norway (36%), the United States (30%) and Libya (8%).[65]

6.24 The international nature of pricing, coupled with significant volume of crude oil imports suggests that the UK refineries are subject to global market conditions for crude oil, with the refineries operating as price takers.

Domestic sales

6.25 For domestic sales, refined products are either supplied directly from the UK refineries or from inland terminals. For sales through the inland terminals, refined products are transported from the refineries to the terminals either through oil pipelines (which can be publicly or privately owned), railway or maritime shipping. From the terminals, refined products are generally supplied to the domestic customers through road tankers.

6.26 Domestic customers for refineries include wholesalers (discussed further in Section 7, including international oil companies like BP and Shell) and retailers (discussed in Section 8). Generally, wholesalers arrange for the transport of product themselves (ie collect the refined oil from the terminals). For supplying PFSs, refineries tend to arrange the transport themselves, either through their own road tankers (eg Prax owns Axis Logistics) or by hiring third-party haulage companies.

6.27 Although refineries are generally located quite far apart in different regions, there may be significant overlap in the areas they supply, especially in England. For instance, four of the six refiners operate terminals (connected via pipeline or railway) in Kingsbury, with one refiner operating a terminal nearby in Birmingham. From these terminals, the five refineries can easily supply customers based in the Midlands and the south of England.

6.28 Even though there are no direct pipeline connections between England and Scotland, some refineries - but not all - supply cross-border across the two nations. This may be through the use of railway or coastal vessels.

6.29 Refined products are collected or delivered from the terminals through road haulage. As costs for road tankers increase with distance, it is uneconomical for refineries to supply customers outside a certain geographical distance from their

[63] DUKES data file spreadsheet 3.8
[64] DUKES data file spreadsheet 3.1
[65] DUKES data file spreadsheet 3.7

terminals. For instance, one refiner mentioned that it is generally uneconomical for it to serve areas that are more than 4 hours away by truck.

6.30 Refiners face competition not only from other refiners, but also from wholesalers who import products into the UK through coastal terminals. This is discussed further in Section 7.

International sales

6.31 The proximity of the refineries to coastal terminals means that they are able to export refined products to international customers through maritime shipping of cargoes. The refineries generally tend to be price takers: the prices are referenced on benchmarks by Price Reporting Agencies (PRAs), like S&P Global or Argus, reported for the Northwest Europe (NWE) region.

6.32 In 2021, around 14 million tonnes of petrol were produced by UK refineries. Of this, more than 55% was exported to foreign countries.[66] The top three destinations are the United States (30% of petrol exports), the Netherlands (27%) and Belgium (22%).[67] In comparison, of the 17.9 million tonnes of diesel[68] produced by UK refineries, only 20% was exported to foreign countries. The top three destinations for export are Ireland (40% of diesel exports), the Netherlands (21%) and Belgium (19%).[69]

Global Nature of the Market

6.33 According to one refiner, oil can be transported to "anywhere in the world for around US$ 3-4 per barrel". This, coupled with the characteristic of being storable, facilitates the significant volume of international trade that we observe for both crude oil and oil products.

6.34 Furthermore, prices for both these commodities are referenced on international benchmark prices by PRAs, and the factors that influence these prices are affected by external events.

6.35 This suggests that the market for refining is wider than the UK and subject to global market conditions. This view has been shared by parties we engaged with during the study, including some of the refiners[70] and the United Kingdom Petroleum Industry Association (UKPIA).

[66] DUKES data file spreadsheet 3.2
[67] DUKES data file spreadsheet 3.8
[68] Please note that the amount of diesel is a sum of Gas Oil and DERV (red diesel and white diesel respectively).
[69] DUKES data file spreadsheet 3.8
[70] Essar Oil, Philips66 and Valero responses to the Invitation to Comment.

The refining spread and refinery margin

Evolution of the spread since the Urgent Review

6.36 In Section 5 we outlined how retail prices for petrol and diesel have evolved over the period January 2015–October 2022, alongside trends in cost components which drive retail prices, including the refining spread. We outlined the methodology used to calculate refining spreads, which is different to the methodology adopted in the Urgent Review insofar as biofuel costs have been taken out and are presented as a standalone component, and the refining spread is calculated per litre of petrol/diesel sold at the pump.

6.37 Figure 6.3 below shows the refining spreads for petrol and diesel for each week in the period January 2015–October 2022. Average refining spreads over the period 2015–2019 were around 5ppl for petrol and 6ppl for diesel. Refining spreads were negative in some weeks in late 2018/early 2019 for petrol, and early 2020 for both petrol and diesel. Average refining spreads in 2020 were lower, at around 1.5ppl for petrol and 3ppl for diesel.

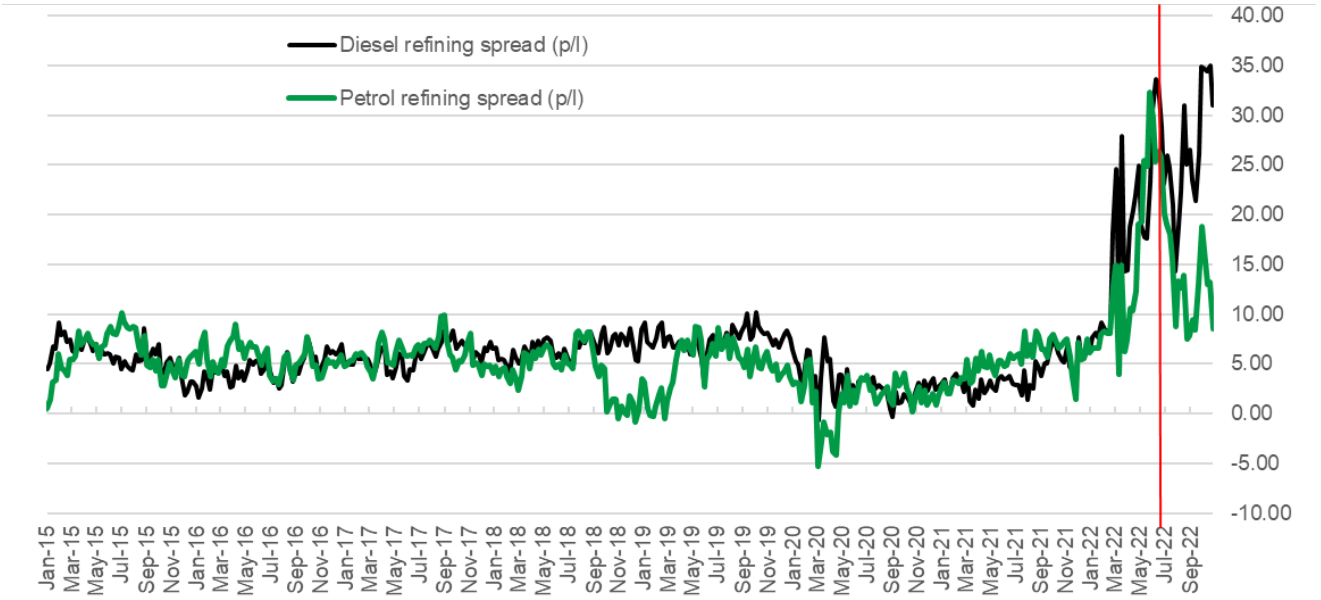
6.38 Spreads started recovering in the second half of 2021, and then increased to 32-33ppl in the first half of 2022. In the second half of 2022 spreads for petrol and diesel reduced to around 10-15ppl at the start of August 2022 before diverging:

(a) the refining spread for diesel has been climbing steeply in September and October 2022, reaching a peak of 35ppl in mid-October and remaining above 30ppl at the end of the month.[71]

(b) on the other hand, the refining spread for petrol remained below 15ppl in September, then increased to 19ppl in mid-October before reducing below 10ppl at the end of the same month.

[71] This may be driven by the ongoing supply crisis in the diesel market due to multiple factors, including higher seasonal demand (eg, diesel is used for heating in winter) and reduced supply (eg, western self-sanctions on Russian oil, refinery closures resulting from seasonal maintenance, and trade union strikes in French refineries). See for example: Parts of Europe are starting to run out of diesel, Bloomberg article, dated 22 October 2022, and Diesel gas shortage: what stocks are impacted by a diesel gas shortage? Forbes article, dated 6 November 2022.

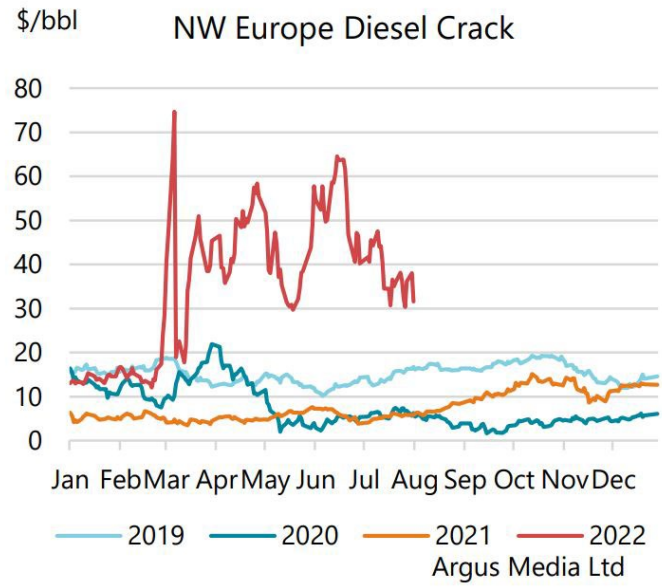
Figure 6.3: Refining spreads for petrol and diesel, January 2015–October 2022, pence/litre



Source: BEIS, Platts, Bloomberg and Bank of England data, and CMA analysis.

6.39 We also note that the increased refining spreads that we have seen in the UK have also been observed in other countries, with increases of a similar magnitude during 2022. For instance, Figure 6.4 below shows elevated refining spreads for North West Europe during 2022.

Figure 6.4: Refining spread ("crack") for diesel in North West Europe, 2019-2022



Source: IEA Oil Monthly Report – August 2022

Market participant views

6.40 In our Urgent Review, we referred to supply-side factors (Russian invasion of Ukraine and global decline of refinery capacity during the covid pandemic) and demand-side factors (easing of covid restrictions and seasonal changes) that

could have led to high refining spreads. Some parties' views regarding the high refining spreads were aligned with these explanations. In addition to these, one refiner pointed to the impact of lower export allocations by China, tax imposition on exports by India and lack of new investments in refining due to policy announcements.

Use of spread / margin

6.41 As noted in paragraph 6.5, we received evidence that examining the spread that refineries earn from petrol and diesel is a poor proxy for their overall financial performance. Some parties[72] have suggested that analysing refining spreads as a measure of profitability is inadequate, with spreads considerably overstating profit margins. They suggested this was the case because refining spreads do not include two factors: (a) operating costs and (b) prices of other petroleum products.

(a) *Increased operating costs:* Some parties mentioned that the costs of running refineries have increased significantly because of increases in compliance requirements (blending obligations due to RTFO, critical stock obligations, etc), crude oil delivery costs, energy costs, distribution costs and costs of complying with greenhouse gas emission reduction regulations, such as the UK Emissions Trading Scheme (UK ETS).

(b) *Prices of other petroleum products:* As described above in the sub-section on production processes, refineries produce a wide range of products apart from petrol and diesel. One refiner mentioned that there has been a decrease in the refining spreads for fuel oil and LPG, which will have a negative impact on profitability.

6.42 *Cyclical nature of the market:* In addition, one market participant mentioned that the refining industry is characterised by both "significant and long-term capital investments and cyclical margins." In this regard, analysing short-term profitability may not be appropriate. Some refiners told us that they have experienced losses during the pandemic due to the large negative demand shock. In their view, profitability should be analysed over a longer time horizon.

Profitability analysis

Summary

6.43 In summary, our analysis to date of UK refineries' profitability from the period January 2017 to August 2022 indicates the following:

[72] Market participants who responded to our Invitation to Comment on the market study include Essar Oil, Philipps66, Valero and UKPIA. All of them pointed to the inadequacy of using refining spread as a profitability measure.

(a) Profitability over this time period is very volatile;

(b) During 2020 and the early part of 2021, refineries were significantly loss-making due to the impact of the Covid pandemic on demand for refined products.

(c) There was a spike in profitability in the first half of 2022 driven by decreased supply of refined products which coincided with the Russian invasion of Ukraine. This spike in profitability appears to have abated with margins returning to relatively low levels in July and August 2022. While we have analysed margin data up to August, the recent increase in the diesel refining spread suggests that profitability will have moved higher again.

(d) Average profitability margins over the past five years have generally been modest and below levels that would give us cause for concern about the market. Indeed, even with the spike in margins described above, some UK refineries were loss-making over the period from January 2020 to August 2022 on a cumulative basis.

Methodology

6.44 To assess the profitability of UK refineries, we used the refiners' own internal management accounting information for their refining operations, covering the production of the full range of petroleum cracks. We therefore requested the management accounting information for each of the major UK refineries as set out in Figure 6.2. We sought this information annually for the periods from January 2017 to December 2020 and on a monthly basis from January 2020 to August 2022.[73]

6.45 This time period was selected so that we could assess profitability over a period that included both the impact of the covid pandemic and the Russian invasion of Ukraine. It was also chosen so that we could assess profitability in a time period that excluded the impact of both these events.

6.46 We have heard that there may be some costs (particularly in respect of the allocation of group overheads) that are not included in the management accounts prepared for their refining operations. In addition, UK refining operations are often integrated with other non-refining businesses within the oil production value chain such as wholesale activities and 'feedstock' activities (which acquire crude oil for refining activities) both in the UK and internationally. Often where this is the case

[73] Due to the nature of the management accounts provided by some respondents we were only able to include 4 of the 6 refiners in our margin calculations. Therefore, whilst we included management accounts from the majority of respondents we have not included all the major refineries in the UK in our calculations. However, we note that as refineries' revenue is determined by international pricing benchmarks we would expect the revenue of those refiners we have not been able to include to follow a similar trend. As a result, any variations would be largely driven by any efficiencies in their operations and we are therefore of the view that it is likely their results would follow similar trends.

in the management accounts the actual revenue received from the sale of the refined products and the actual input cost of crude oil is replaced with a transfer pricing mechanism based on the market value of these products at that time. This results in the costs and risks associated with the inventory (including hedging costs) not being included in the management accounts of the refinery.

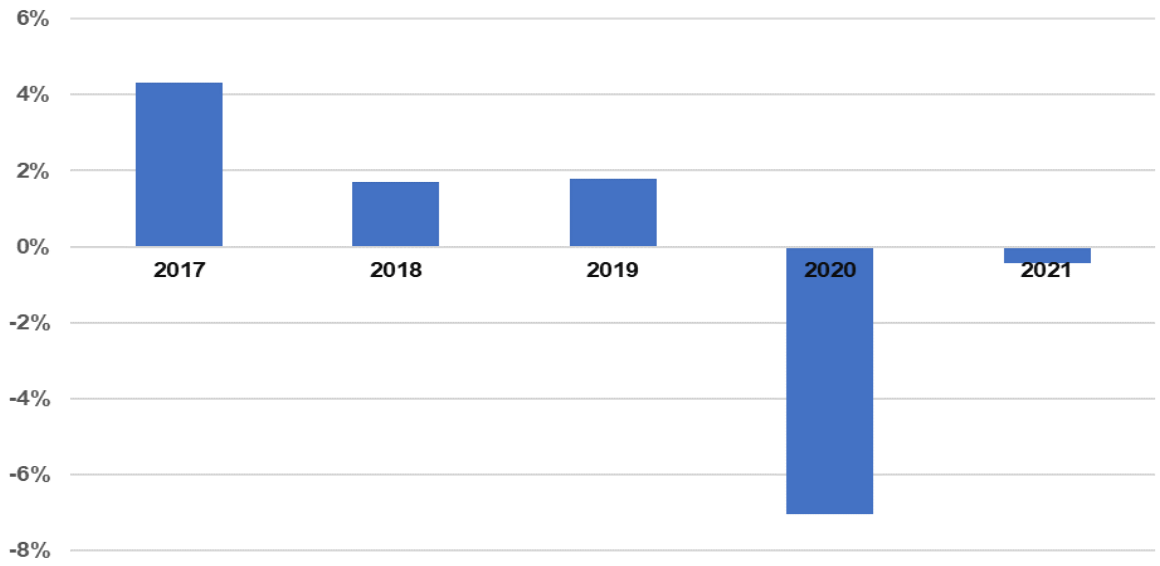
6.47 Margins have been calculated by dividing earnings before interest, tax, depreciation and amortisation (**EBITDA**) by total revenues as reported in order to calculate margins on a consistent basis across all refiners based on the information we have received. As refining is a capital-intensive industry there are significant capital investment costs reflected in depreciation and the exclusion of these will result in margins being overstated. In addition, movements in the underlying crude oil price may impact the total revenue figure which acts as our denominator and in turn may impact the margin we have calculated.

6.48 Nevertheless, since the factors outlined above in paragraphs 6.46 and 6.47 (with the exception of the impact of crude oil prices on the margin calculation) would generally act to reduce margins further we do not consider that they would invalidate the interim findings set out in paragraph 6.43 above.

Emerging findings

6.49 As shown in Figure 6.5 below, the profitability of refiners has varied significantly over time and is volatile, reflecting demand for refined products. In 2020 due to the impact of the covid pandemic margins decreased significantly with all UK refiners becoming loss-making as demand for refined products reduced considerably impacting the price of refined products. In response to this many UK refineries reduced production considerably. This had a further impact on margins as it resulted in reduced scale and reduced leveraging of their fixed cost base. In 2021 margins increased somewhat although were still significantly below 2017 levels.

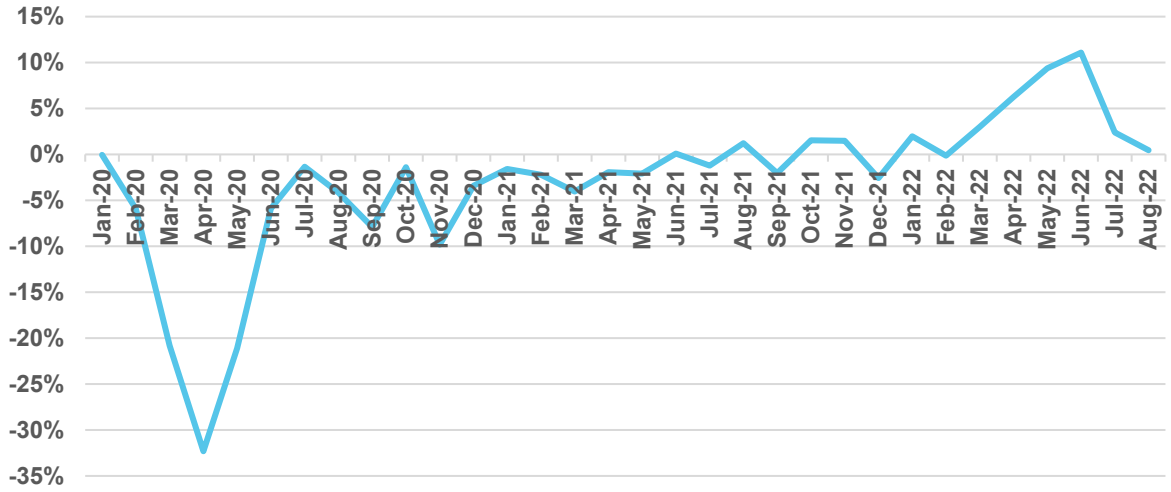
Figure 6.5: Average Annual Profit (EBITDA) Margin for the period 2017 to 2021



Source: CMA calculations based on parties' submissions.

6.50 As shown in Figure 6.6 below refining margins spiked significantly in the first half of 2022 driven by reduced supply due to the Russian invasion of Ukraine. However, this spike appears to have abated with margins more in line with long-term averages in July and August 2022.

Figure 6.6: Average Monthly Profit (EBITDA) Margin for the period January 2020 to August 2022



Source: CMA calculations based on parties' submissions.

6.51 On an absolute basis, EBITDA margins, whilst volatile, appear on average relatively low for refiners for the time period we examined. Moreover, on a cumulative EBITDA basis some UK refiners were loss-making from the period January 2020 to August 2022. As noted above at paragraphs 6.46 to 6.47, there are also additional costs that are not included within these figures. If they were

included, it is likely that would reduce these margins further and also increase any losses calculated over the same period.

6.52 As noted above at paragraph 6.41 the methodology for calculating refining margins differs substantially for that for calculating refining spreads. Refining margins include:

(a) an assessment of profitability on a 'whole of barrel' basis. Due to the chemical composition of crude oil a number of different chemical components are necessarily produced during the refining process in addition to petrol and diesel as shown in Figure 6.1 the net impact of this is that the 'whole of barrel' margin (the difference between the input cost of crude oil and the revenue generated through the sale of the refining products produced) is significantly lower than 'the refining spread' as per paragraph 6.41.

(b) refining margins also include the significant operating costs of running a refinery.

Provisional conclusions

6.53 At this stage, our provisional view is that while refining margins may continue to be subject to volatility due to global factors, and this is likely to result in price volatility at the pump, we do not believe that these stem from weaknesses in competition in the UK refining sector. Rather, they are driven by our exposure to global factors.

6.54 Despite the high margins that we have seen in refining during 2022, we do not see evidence that UK motorists are facing negative outcomes arising from deficiencies in competition in the UK refining sector. As noted above, refined petrol and diesel trade on international markets, with prices determined by international supply and demand. Within the UK there is no incentive for UK refiners to set prices below international levels because they know they can sell their entire output at this price level; at the same time, they cannot respond to short-term peaks in margin by increasing their capacity due to the time and expense that the capital investment required to do this would entail. This means that at times when global refining spreads are high, UK refiners will earn higher margins (and vice versa). Changing the structure of the UK industry, eg by breaking up refiners, even if practically achievable, would have no impact on this given the nature of the global market.

6.55 The question may be asked whether there are measures that should be taken to directly limit the margins that refiners are able to earn in periods when global prices for refined products are high. We would not, however, recommend any such measures, for three main reasons.

(a) First, looking over a medium-term price horizon, and taking account of the at-times negative profit margins we have observed, there have to date been no

overall excessive profits for UK refiners. While profit margins have been higher than normal during 2022, this has so far served only to off-set their reduced (or even negative) profits during 2020 and 2021. Reducing their profit levels below sustainable medium-term rates would risk accelerating the reduction in refining capacity that the UK has seen over past decades.

(b) Second, applying such restrictions in the UK would create an incentive for UK refiners to sell abroad, at best removing the benefit for UK consumers and at worst risking shortages in the UK; and

(c) Third we do not know if the recent high margins will continue into the future, once the current imbalance of global supply and demand eases.

6.56 For these reasons, we do not think that there are interventions that could be made directly to change how the refining market is functioning in the UK, that would improve outcomes for motorists. Recognising the impact that high and volatile refining margins have on the prices consumers face at the pump, we will, however, continue to consider whether there are wider steps that a government could take to mitigate the impact of any ongoing volatility.

6.57 We invite views, supported by evidence, on our provisional findings on competition in the refining segment.

7. Wholesale

Introduction

7.1 Retailers can purchase road fuel from refiners, importers and independent wholesalers, which themselves primarily purchase road fuel from refiners and importers. We refer to the supply of fuel to retailers as wholesale supply, or the wholesale market, to distinguish it from the retail market where retailers supply fuel to final consumers.

7.2 In our Urgent Review, we said that we planned to analyse the terms and impact of any long-term supply agreements between independent retailers and wholesale suppliers and develop our understanding of the relationships between wholesale suppliers and retailers and their impact on market outcomes.

7.3 In this section, we therefore describe the different approaches to wholesale supply, the activities that are carried out by wholesale suppliers and the features of the contracts that determine wholesale supply, including how prices are calculated. We then set out our preliminary views of competition in the wholesale market and set out the further work we plan to carry out.

Different approaches to wholesale supply

7.4 The main wholesale suppliers include:

(a) the six main UK refiners.[74]

(b) importers of road fuel into the UK, including Greenergy and Mabanaft.

(c) independent wholesalers, such as BP, Certas and Shell, which primarily purchase fuel from UK refiners and/or importers to sell to retailers.[75]

7.5 We have identified two principal models of wholesale supply; unbranded or branded. Unbranded wholesale supply will typically only cover the supply of fuel, whereas branded supply will typically include ancillary services as well as branding. We discuss these in turn.

Unbranded supply

7.6 In the case of unbranded supply, the supplier provides the fuel which the retailer sells under its own brand. Large importers, such as Greenergy, are typically unbranded suppliers and generally most of the motor fuel that refiners sell to

[74] Essar, Esso, Petroineos, Prax, Phillips 66 and Valero. Refiners may import petrol and diesel as well as refine it in the UK.
[75] Refiners and importers may sell diesel and petrol to each other as well as to independent wholesalers and retailers.

retailers is on an unbranded basis. The supermarkets are the largest customers for unbranded supply.

7.7 Contracts for unbranded supply are typically of up to two years duration. A retailer told us that its contract durations had increased recently from one to two years due to the need to improve supply chain resilience including security of supply. However, a wholesale supplier told us it had recently seen demand for shorter contracts of two or three months, which had been driven by current market conditions.

Branded supply

7.8 Branded supply involves the supplier supplying both the fuel and a branding package to the retailer. The main supplier brands of motor fuel in the UK are BP, Shell, Esso, Texaco (Valero), Jet (Phillips 66), Gulf and Pace (both Certas). Branded suppliers may also offer additional services to retailers, such as marketing; access to a loyalty scheme; back office support; fuel cards, safety inspections and franchising of food service offers.

7.9 Contracts for branded supply are typically of five years duration, though some have a break point at around three years. Suppliers and retailers told us that a longer contract duration gave longer to recover the fixed costs of rebranding PFSs won from other suppliers. Such costs included site branding, infrastructure such as signage and poles and point of sale hardware. One supplier told us that, by their nature, shorter term contracts meant that it could offer little or no investment support in branding or hardware.

Integration between wholesale supply and retailing of road fuel

7.10 Some wholesale suppliers continue to own and operate a number of PFSs. BP told us it owns 317 sites which it also operates.[76] We also understand that Shell owns 552 sites, and Esso 169, where the oil company is responsible for the maintenance of the fuel equipment and forecourt and for the supply, quality and price setting of fuel, with all other aspects of operation, including the shop, contracted out to others.

Different types of retail business model

7.11 Wholesale supply may also be affected by differences in how retailers operate. In particular, there are two main different business models prevalent on the retailing side:

[76] Such sites are traditionally described as ‘company owned company operated (COCO)’ sites, as distinct from dealer owned dealer operated (DODO)’ sites. There are now only a very few company owned dealer operated (CODO) sites.

(a) the site owner both sells the fuel and operates the site. This includes all the PFSs at large supermarkets and many other PFSs.

(b) the site owner (which may, as described in the previous paragraph, be the wholesale supplier) owns the site and sells the fuel (including setting the price), but contracts out other aspects of operation, including the shop, to another company, which may be described as a franchisee or agent of the site owner.

7.12 This means there may be up to four companies involved in the sale of fuel by the time it reaches the consumer: refiner or importer, wholesaler, fuel retailer and site operator.

Wholesale activities

7.13 The industry distinguishes between 'midstream' and 'downstream' activity and does not necessarily identify a separate wholesaling segment.

Midstream

7.14 'Midstream' would include, in addition to refining, (i) primary distribution of motor fuel from the refinery or point of import to the terminal (typically by pipeline or rail)[77] and (ii) blending of fossil fuel with renewables (as set out in the next paragraph). These activities may be carried out by the refiner/importer or by an independent wholesaler; this will depend for example on which party operates the terminal.

7.15 Suppliers need to add renewables to fossil fuel to meet the government's Renewable Transport Fuel Obligation (RTFO). The main 2022 RTFO requires suppliers to have RTFO certificates amounting to 12.599% of fossil fuel supplied and additionally there is a development fuel obligation.[78] In practice, renewables are likely to be less than 12.599% of fossil fuel because (i) most renewable fuel is sourced from waste and can be double-counted for the purpose of the RTFO and (ii) the development fuel obligation is usually bought out, rather than met by supplying development fuels. Blending of fossil fuel and renewables is usually carried out at the terminal.

Downstream

7.16 'Downstream' would include, in addition to retailing, the services provided by brand owners (see paragraph 7.8) and secondary distribution, ie delivery of fuel from the terminal to the PFS (typically by road). However, neither of these activities would

[77] Midstream activities also include, in the case of imports, transport from the overseas refinery to the UK.
[78] See renewable transport fuel obligation compliance guidance.

necessarily be arranged by the wholesale supplier since wholesale supply may be on an unbranded basis (see paragraph 7.6) and secondary distribution is often arranged by the retailer rather than the wholesale supplier.

7.17 Whether arranged by wholesale supplier or retailer, secondary distribution is usually contracted to a specialist provider, such as Hoyer. However, some wholesale suppliers, such as Greenergy, Prax and Certas, carry out secondary distribution themselves.

Wholesale supply contracts

Main features

7.18 Contracts for unbranded supply are typically of one to two years' duration (see paragraph 7.7), with pricing determined by formula (see below). Such contracts would also have volume provisions, for example a contracted volume with a tolerance threshold, or minimum and maximum volumes. Retailers taking unbranded supply typically purchase from a number of wholesale suppliers.

7.19 Contracts for branded supply are similar, but are for a longer duration (usually five years, see paragraph 7.9), specify the PFSs to be supplied, and have additional terms relating to branding and supplementary services. Consistent with the PFS being supplier branded, these contracts are for exclusive supply to the specified PFSs, though occasionally may allow additionally for retailers to obtain 'bunker fuel' from another source and sell it from an unbranded pump. Multi-PFS retailers, including those taking branded supply, usually have contracts with two or more suppliers. Thus, while the contracts provide for exclusive supply to individual branded PFSs, this does not imply exclusive supply to retailers which operate PFSs under more than one brand.

7.20 The contracts may include delivery to the PFS, or may be on a collection basis (if the retailer arranges delivery from the terminal to the PFS). If on a delivered basis, the contract will provide for the cost of delivery to each PFS to be added to the ex-terminal price. If on a collection basis, the contract will specify the terminals from which fuel is to be collected and the volumes applicable to each.

How fuel pricing in contracts works

7.21 Contracts set the price of fuel on the basis of international prices for diesel and petrol and for the biofuels which are blended with fossil fuels in the mix supplied to retailers.

7.22 This is done through a pricing formula setting the price per litre for diesel and petrol on the basis of a number of terms of which the main ones are:

(a) Platts benchmark for UK import price of fossil fuel in dollars per tonne;

(b) Benchmark for ARA[79] price of biofuels in dollars per tonne (biodiesel) or euros per cubic metre (ethanol) together with provision for transport from ARA to UK;

(c) Proportion of fossil fuel and biofuel;

(d) Exchange rate and conversion factors from tonnes to litres;

(e) Cost of development fuel obligation;[80] and

(f) Premium (or discount) to benchmark, which will likely vary by terminal if the contract covers supply from more than one terminal. In most cases, the contracts provide for a higher premium for higher quality 'super' fuel.[81]

7.23 The international benchmark prices in contracts may relate to prices one or two days before the collection or delivery is made; or to the average price for the Monday-Friday before the collection or delivery; or, sometimes, to the average price 1 to 2 weeks before that. Thus, the contract price is linked to Platts prices between 1 day and an average of 3 weeks earlier. We understand that supermarkets obtain fuel on contracts with average delays of 1 to 3 weeks, while other retailers obtain fuel on contracts with delays averaging no more than one week (and in many cases with a delay of only one or two days). We note that a longer delay gives longer to plan retail price changes and, other things equal, means the retailer pays less for fuel when international benchmark prices are increasing, but more for fuel when international benchmark prices are falling.

7.24 In relation to biodiesel, the evidence we have obtained on pricing terms in contracts suggests that they typically link to a benchmark price for a type of biodiesel[82] that is not double-counted in meeting the RTFO. However, Department for Transport statistics[83] and other evidence show that the biodiesel used in recent years in the UK is sourced primarily from waste and can be double-counted in meeting the RTFO. In the light of this, we may decide to assess further whether contractual terms reflect the costs that suppliers incur in supplying biodiesel, or whether they may be contributing to higher prices.

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[79] Amsterdam/Rotterdam/Antwerp.
[80] See paragraph 7.15.
[81] PFSs in the UK usually sell four types of road fuel: standard diesel, standard 95 octane petrol (E10), higher quality 'super' diesel containing additives to improve performance and higher quality 'super' 97-98 octane petrol (E5), which may also contain additives to improve performance.
[82] FAME minus 10, ie Fatty Acid Methyl Ester conforming to EN 14214 specifications with a maximum cold filter plugging point of minus 10 degrees Celsius.
[83] Renewable fuel statistics 2021: Fifth provisional report – GOV.UK (www.gov.uk); Renewable fuel statistics 2022: First provisional report – GOV.UK (www.gov.uk).

Competition in wholesaling

7.25 As already mentioned (see paragraph 7.1) wholesale suppliers include refiners, importers and independent wholesalers. Supermarkets and large retail fuel businesses conduct the contract process via tender and will negotiate with wholesalers. Smaller retailers have a less formal process but enter discussions with multiple suppliers to secure their preferred contract terms.

7.26 The tendering process means retailers will at times change suppliers when their contract ends. Wholesalers report that the renewal or creation of new contracts results in an annual customer churn rate of between 2-10% depending on market conditions.

Competition between wholesale suppliers

7.27 Parties told us that, when existing contracts are close to expiry, retailers reach out to wholesale suppliers via tenders. There is some differentiation between the types of customers that each wholesaler targets. One wholesale supplier told us that it has a preference for supermarkets and other high-volume customers whereas another makes the majority of its sales to smaller PFS groups or independent PFS sites.

7.28 Supermarkets will contract regionally for supply for their fuel business and will often have more than one supply arrangement in place to increase resilience. Wholesale suppliers told us that retailers with larger volume requirements, such as supermarkets, tended to have a stronger negotiating position and therefore to benefit from lower premiums over Platts benchmark prices.

7.29 Geography will play a role in how competitive a supplier can be in a given area. This is due to the high costs of haulage when the customer is further away from a terminal. One refinery told us that it generally becomes uneconomical for it to sell in areas with a drive time of more than four hours and another mentioned in its response that it typically serves customers within 120 miles of its refinery terminal.

7.30 To increase their national presence wholesale suppliers will secure access to coastal or inland terminals across the country, supplied by rail or by sea,[84] as this allows them to sell fuel in more locations. These can be for sole use or can be shared by multiple wholesalers. For example, Grangemouth Ross is used by three suppliers.

7.31 Price is an important aspect of competition. Retailers compare the total cost of purchasing from different wholesale suppliers, taking into account the costs of

[84] UK refiners told us that their costs of shipping by sea to a coastal terminal within the UK were increased due to their paying tax ex-refinery rather than ex-terminal (because the tax had to be paid earlier and product losses occurred during shipping from refinery to terminal). By contrast, UK tax on imported fuel was paid ex-terminal.

delivery to their PFSs (which may or may not be part of the contract, see paragraph 7.20), and will prefer a supplier offering a lower cost of purchase. Retailers also attach importance to security of supply (ie supplier reliability and resilience at the relevant PFS locations). Other factors mentioned by retailers included volume, pricing delay (see paragraph 7.23) and days of credit offered by suppliers.

7.32 In the case of branded supply, the quality of the branded offer is also important. Specific factors mentioned by retailers included branding support; premium grade penetration; popularity of loyalty program; and fuel card penetration. Branded competition is affected by individual PFS location as neither suppliers or retailers usually wish to locate branded outlets very close to each other; for example, one wholesale supplier told us that, before agreeing to supply a PFS, it checked whether the proposed location would adversely impact demand at one of its existing branded PFS and that this was typically less than two miles away on the same traffic flow. Multi-site retailers taking branded supply usually have contracts with more than one branded supplier (see paragraph 7.19), which increases flexibility in contract negotiations.

Switching costs and barriers

7.33 The ACS told us that there were significant retailer costs associated with moving from one fuel supplier to another, eg changing fuel site branding, some fuel retailing equipment and updating their store and colleague operations. Consequently, contracts needed to be of sufficient length to give retailers certainty of securing a competitive fuel price and to invest in their fuel retailing and grocery retailing offer.[85]

7.34 We asked retailers about costs or other barriers which would be incurred or encountered in changing their supplier of petrol and diesel. Responders did not identify significant costs other than, in relation to branded supply, rebranding costs if not covered by the new supplier. One retailer mentioned the costs associated with ending a contract during its term, for example early termination fees. One retailer, which arranged its own distribution, mentioned the need to retrain distribution drivers.

7.35 A wholesale supplier mentioned that when it contracts with a new customer there is a period of administration, credit checks and training for the drivers. These costs are initially covered by the supplier and can take 8 weeks.

[85] Association of Convenience Stores response to ITC, page 2.

Contract length and volume commitments

7.36 During the course of our Urgent Review, we heard general concerns that long-term supply agreements lacked the flexibility needed to respond to market forces and can bind retailers to strict terms, particularly regarding minimum volume commitments.

7.37 The evidence we subsequently obtained during this market study has suggested that contract lengths are typically up to five years and that, within this range, a longer contract term of about five years facilitates competition for branded supply by providing a longer period to recover the upfront rebranding costs which inevitably arise when a retailer switches some or all of its PFSs to a different brand.

7.38 We also have not so far seen specific evidence of contractual volume terms being interpreted inflexibly, with adverse effects on competition or consumers. For example, we have not so far seen adverse effects on competition or consumers resulting from suppliers enforcing volume commitments strictly (eg when demand fell drastically during the covid lockdowns). We would welcome any further evidence from stakeholders on this issue.

Fuel cards

7.39 As already noted, competition between wholesale suppliers may include the provision of fuel cards. Fuel cards are issued by branded suppliers and independent fuel card companies and enable card holders to pay for fuel at participating PFSs. They are issued to businesses and facilitate the management of employees' fuel purchases.

7.40 The importance of fuel cards varies according to PFS location. It is highest on motorways and main roads where commercial vehicles and company car drivers are most likely to refuel. For this and other reasons (ie acceptance policy and fuel card pricing which is discussed below), the proportion of volumes from fuel card sales also varies by type of retailer, typically being up to 10% for supermarkets, 10% to 20% for the large retail groups and up to around 80% for motorway retailers.

7.41 Supply contracts may provide for retailers to accept fuel cards specified by the fuel supplier, or retailers may agree directly with fuel card companies to accept their fuel cards.

7.42 The fuel bought with fuel cards is primarily diesel and we would divide fuel cards into two main categories:

(a) those where the PFS retailer receives the pump price (less a discount) from the fuel card supplier - these are similar to payment cards; and

(b) those where the PFS retailer receives a commission from the fuel card supplier and the fuel card supplier sells fuel to the customer on a previously agreed basis, for example the price may be linked to Platts benchmarks or to average prices at selected stations in the previous week. We refer to such cards as commission-remunerated (CR) fuel cards.

7.43 Retailers noted that their gross margins on CR fuel cards were low, usually between 1ppl and 2ppl and therefore substantially below their average gross margin on sales at pump prices (though, as noted elsewhere in this report, this varies from week to week in response to fluctuations in wholesale prices). This is especially the case for motorway PFSs – for example, one retailer targets a margin on pump price for non-fuel card sales of about 25ppl. One retailer said that the gap between what it earned on supplier fuel cards and other transactions had substantially widened over time; and that its suppliers were currently trying to further reduce the commission that they paid on fuel card transactions.

7.44 Despite the low margin on CR fuel cards, retailers accept them either because the overall package from the supplier is attractive or because they generate incremental fuel and/or non-fuel revenue. One retailer told us that accepting fuel cards typically generated additional footfall to the site which benefitted both fuel and non-fuel activities - while margins from fuel cards were not sufficient to cover site operating costs, they generated additional footfall to the site. However, another retailer said that, due to the declining value of fuel card transactions over the last 5 years, it placed less emphasis on fuel card volumes and had been able to move sites from high participation fuel card brands to lower participation brands and even to brands with no current supplier fuel card offer.

Further work

7.45 We will continue to gather and review evidence on wholesale competition. In particular:

- we will review evidence on margins being earned by wholesalers, and in doing so will take into account the level of margins suppliers earn on biofuels, in particular biodiesel (see paragraph 7.24).
- we will also undertake further work to examine the concerns we heard in relation to fuel card margins.
- as stated above (see paragraph 7.38), we have not so far seen specific evidence of contractual volume terms being interpreted inflexibly by suppliers with adverse effects on competition or consumers, but would welcome any further evidence from stakeholders on this issue.

8. Retail

8.1 In our Urgent Review we provided an overview of the factors driving prices paid by UK motorists at the pump. We outlined how competition between fuel retailers takes place principally at the local level, and how conditions vary to some degree in areas across the country.

8.2 We looked at the difference between retail prices and wholesale costs, and found no strong indication that rising retailer spreads had driven the significant rise in pump prices which had been seen in the preceding months.[86] We therefore concluded that there was no cause from that indicator alone, and the evidence we had seen to date, to conclude that pump prices had been higher over the preceding year because retailers were earning higher profits.[87]

8.3 The Urgent Review, did, however, highlight three further areas at the retail level of the supply chain that merit further investigation:

(i) how retailers determine the prices they set at the pump, and in particular, how retail prices track wholesale prices.

(ii) how prices vary at a local level and across regions – in particular it identified evidence to suggest that prices in rural areas tend to be higher than in urban areas, and that prices in England had been higher than in other nations and this warranted further investigation.

(iii) the role the major supermarkets play in road fuel retail markets, and whether there are ways that competition across different types of retailers can deliver further benefits for consumers.

8.2 The use of the market study tool gives us both more time to conduct our analysis and greater access to data than we had during the Urgent Review. This means that we are able to ask more detailed questions of industry participants using our statutory information gathering powers, as well using local level data to build detailed econometric models to better understand how the market works at a local level. We are also covering a longer time period with our analysis than at the Urgent Review. By looking at five years of data we are able to consider a period prior to the shocks of the Covid pandemic and the Russian invasion of Ukraine.

8.3 In Section 5 we set out an updated analysis of spreads, which is an extension of work conducted during the Urgent Review. In this section we begin by examining

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[86] For example, we noted that the share of the pump price accounted for by the retailer spread in the three months since the 23 March fuel duty cut (5.5%, or 9.9p per litre) is similar to the share in the three months preceding it (5.8%, or 8.7p per litre), and lower than in the second half of 2021 (7.9%, or 11.2p per litre).
Source: CMA analysis of BEIS response to request for information. Figures are combined average weekly retail spreads for petrol and diesel for the periods: 29 March to 27 June 2022; 21 December 2021 to 21 March 2022; and 29 June 2021 to 3 January 2022.
[87] CMA Road Fuel Market Study - Invitation to Comment.

the overall pricing strategies used by major PFS retailers. We then use company level data to move from looking at national level retail spreads, to company level margins, which better account for costs faced by retailers and as such provide a much better indication of their profitability. We then examine whether pricing practices or changes to pricing behaviour may explain observed changes in margins. After that, we examine the factors that influence price at a local level.

8.4 Finally, we provide our current overall view of the retail sector and the further work we intend to carry out during the study.

How retailers determine the prices they set at the pump

8.5 As set out in Section 4, retailers sell petrol and diesel to motorists through PFSs which the customer must physically visit; as a result, competition between road fuel retailers principally takes place at a local level. There are multiple retailers across the UK setting prices primarily based on local competitive conditions, but sometimes taking wider elements with a national dimension into consideration. Local areas have different competitive conditions causing retailers' prices to vary across the UK, although some of this variation may reflect differences in the cost of supplying retail fuel to certain areas.

8.6 PFSs can be divided into three main categories: oil company owned and operated, dealer-owned and operated and supermarkets. The majority of PFSs are owned by dealers, but supermarkets sell the largest volumes of fuel.[88] Dealers typically operate under a franchise model whereby they tend to adopt the branding of their fuel supplier, such as Shell or BP. They tend to have long-term supply agreements with their supplier. The structure of the market appears to be relatively stable.

8.7 Supermarkets tend to have stronger bargaining positions than dealers because they buy greater volumes of fuel. As such, supermarkets are typically able to negotiate a lower purchase price and on shorter-term contract than dealers. They can also buy fuel on a longer 'lag' than dealers.

Views from market participants

8.8 We sent requests for information using our statutory information gathering powers[89] to four supermarket retailers[90] and nine non-supermarket retailers/Motorway Service Area (MSA) operators.[91] Responses show variation in the sophistication of their pricing models with some using complex algorithms to determine their pricing and others basing their strategy solely on observing

[88] Petrol Retailers Association (PRA) – Market Review 2021.
[89] These are set out in section 174 of the Enterprise Act 2002.
[90] Asda, Morrisons, Sainsbury's and Tesco.
[91] Applegreen and Welcome Break (under common ownership), BP, Euro Garages, LCC Oil, Motor Fuel Group, Moto-way, Roadchef, Rontec, and Shell.

competitor prices. In either case pricing rules used are often based on either a +x ppl, or -x ppl, differential to their competitors.

8.9 Different retailers told us that they take different factors into consideration as inputs in their pricing decisions, but these typically included:

(a) proximity of competitors;

(b) identity of competitors (Supermarket PFS, oil major, MSA);

(c) their target margin; and

(d) other local factors (eg current volume, fuel availability, impact on shop and wash sales).

8.10 Retailers told us that they tend to set prices relative to a single "marker" site,[92] or in some cases multiple marker sites. All retailers told us they monitor PFSs in the local area and the marker site will be chosen depending on current pricing and PFS identity. They told us that they update who they view as competitors periodically; from every 6-8 weeks to once a year, or alternatively on an ad hoc basis when there is a change in local competitive conditions such as the opening, closing or rebranding of a PFS.

8.11 Retailers told us that prices are usually updated automatically according to a pricing algorithm but this process can involve human intervention when price changes suggested by the algorithm are large. Two fuel retailing businesses told us they have pricing analysts who would make these judgements.

8.12 Generally, parties told us that competitors' pricing and the store level margin of a PFS are the most important factors in their pricing decision. In particular:

(a) supermarkets tend to set prices lower than non-supermarket retailers and report setting prices against other supermarkets. Asda states that its pricing strategy is to be the price leader. The other supermarkets reported closely competing with their supermarket competitors whilst trying to be consistently cheaper than non-supermarket fuel retailers. This results in their marker sites often being other supermarkets. One supermarket reported that, where there is only one competitor nearby, they benchmark their prices against that competitor and where there are multiple competitors, they benchmark their price against the cheapest. This results in a smaller +/- ppl range on their competitor's price when there is another supermarket PFS within a mile.

[92] A marker site is a PFS site that is used as a pricing benchmark.

(b) non-supermarkets tend to act as price followers by responding to price changes from competitor PFSs, including supermarkets. Their prices are typically higher than the supermarkets.

(c) MSAs have a different pricing strategy from other retailers and reported a greater focus on margins especially in locations without close competitors. They observe other MSAs, and price based on achieving a set margin.

8.13 None of the 13 retailers to which we issued a formal request for information indicated that they had significantly changed their pricing strategies in the last five years. That said, some supermarket retailers told us that at times when site level performance was not meeting expectations, for instance when margin targets were being missed due to increasing input costs, their existing pricing strategies are to place less weight on competitor pricing and more weight on ensuring that margins meet their target levels. These pricing strategies have meant that prices have risen with larger increases in wholesale cost including those caused by the invasion of Ukraine, despite the strategy around how these prices are determined not changing. One supermarket told us that it responded to the Ukraine crisis by enacting a new price rule [✂]. They explained that this was to ensure that [✂] in doing so, price their inventory at an appropriate competitive level considering the need to ensure that they have security of supply across grades and sites, and that they have the availability to enable customers to purchase the fuel of their choice at any time. [✂].

8.14 Another possible deviation from the usual pricing rules would occur where supply issues mean site stock levels are running low with little chance of immediate replenishment. One retailer told us they might hold or increase price to maintain a supply of fuel rather than allow their site to run out of fuel which could potentially reduce the footfall for backcourt purchases.

How retail spreads have evolved

8.15 In our Urgent Review we looked at the retail spread, this is the difference between the retail price of petrol or diesel (net of fuel duty and VAT) and the wholesale benchmark price (which is based on prices of crude oil and biofuels).[93]

8.16 It should be noted that the retail spread simply represents the difference between retail prices and a blended wholesale price based on a set of benchmarks for fossil fuels and biofuels; it reflects retail and transportation costs and any premium or discount retailers pay over benchmark wholesale prices as well as any retail margin.[94] We have updated our analysis from the Urgent Review to look at how

[93] We noted that the share of the pump price accounted for by the retailer spread in the three months since the 23 March fuel duty cut (5.5%, or 9.9p per litre) is similar to the share in the three months preceding it (5.8%, or 8.7p per litre), and lower than in the second half of 2021 (7.9%, or 11.2p per litre).
[94] See Annex A – 'Description of data and spreads analysis' for more details.

retail spreads have evolved in recent months, before moving on to look at the margins of retail fuel suppliers and what this means in terms of competition in retail markets.

8.17 It is also worth noting that, care needs to be taken when interpreting the output of spreads analysis to make inference about the relationship between the ex-refinery price and the retail price, and about profitability more generally, at a given point in time. This is because:

(a) retailers typically buy on lagged contracts, so the price they pay is the wholesale price of a week or more previously;

(b) it takes time for retailers to empty their tanks, so the price they paid for the fuel they are selling may be different to the current wholesale price; and

(c) other costs which suppliers have to pay such as transportation may be changing.

8.18 For these reasons, while looking at spreads can be somewhat informative, better measures of margin, taking into account a more accurate assessment of retailer costs and looking over an extended time-period, will give a more accurate picture of the extent to which retailer profit is acting as a driver of pump prices.

Retail Spreads

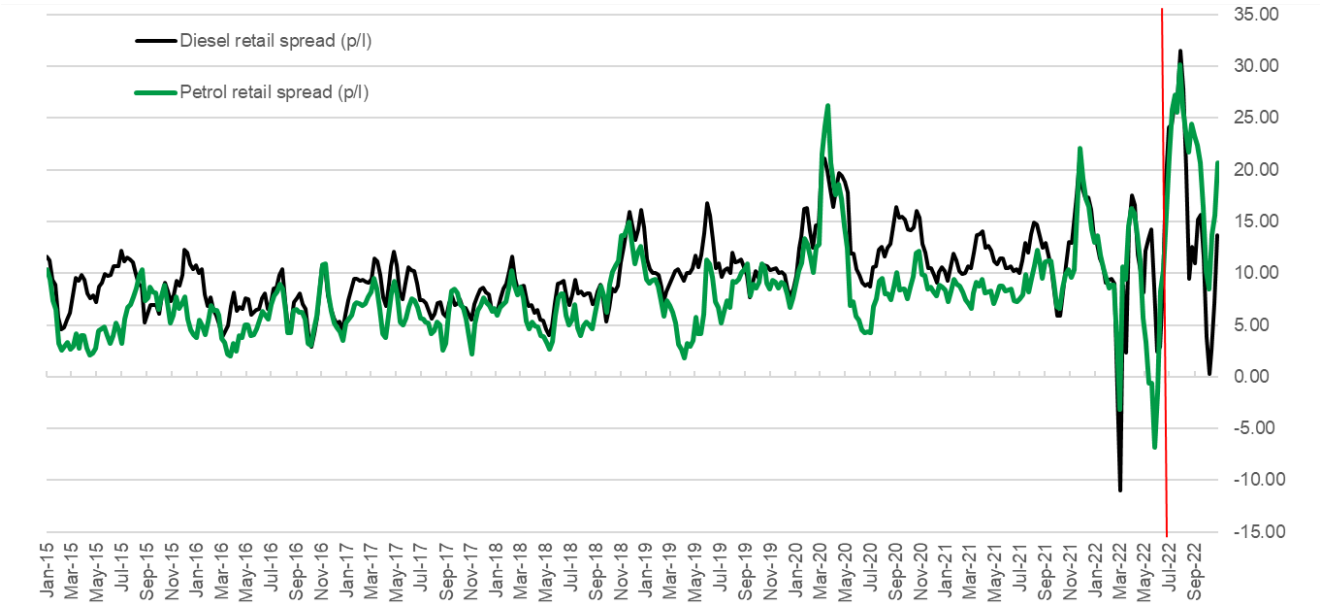
8.19 In Section 5 we outlined how retail prices for petrol and diesel have evolved over the period January 2015–October 2022, alongside trends in cost components which drive retail prices. We also set out the methodology used to calculate retail spreads.

8.20 Figure 8.1 below shows the retail spreads for petrol and diesel for each week in the period January 2015–October 2022. Retail spreads ranged from 5 to 10ppl in the majority of weeks over the period 2015–2019, and then increased significantly in the first half of 2020 coinciding with a significant drop in road fuel demand during the first covid lockdown and a significant fall in the price of crude oil. Since the end of 2021 there has been increased volatility in retail spreads, including periods of negative values as well as record highs.

8.21 Since the CMA published its Urgent Review, which included analysis of retail spreads up to and including the week of 27 June 2022 (marked by the red line in Figure 8.1), retail spreads have increased to record highs of around 30 ppl for petrol and 31ppl for diesel at the start of August 2022. The retail spread for diesel fell to 0 ppl in mid-October and then increased to 14 ppl at the end of October, while the retail spread for petrol fell to 9 ppl in mid-October and subsequently increased to 21 ppl at the end of the same month. Due to the high level of volatility

currently it is impossible to say whether retail spreads will remain at these levels, increase or decrease in the weeks and months ahead.

Figure 8.1: Retail spreads for petrol and diesel, January 2015 – October 2022



Source: BEIS, Platts, Bloomberg and Bank of England data, and CMA analysis.

8.22 Static comparisons of average retail prices and estimated wholesale prices (which are used to calculate retail spreads) do not take into account the lumpy nature of purchases, and the lag between when fuel is purchased by a PFS and when it is subsequently sold.

8.23 In particular, retailers purchase road fuels from wholesalers, or refiners, with these fuels transported to the PFS and placed into storage tanks. The PFS will then sell fuel to motorists over a number of days, depleting its storage tank until it needs to be refilled, which makes fuel purchases lumpy in nature.

8.24 Further, retailers purchase fuel on a lag to the Platts benchmark price of between 1 day and 3 weeks. As a result, we would not expect changes to estimated wholesale costs to be fully and immediately reflected in pump prices.[95, 96]

8.25 In addition, retail spreads are not direct measures of the margins retailers make, and as such, it is not always the case that higher spreads mean increased profitability (eg higher spreads could be the result of increased operating costs retailers face). However, where retail spreads increase sharply, or remain at

[95] For example, one retailer told us that there is a time lag between when an underlying cost price change is reflected in its pump price due to several factors including: i) the contractual lag negotiated in its supply contract, ii) the time it takes to turnaround inventory (eg to deplete existing inventory before determining pump price for new inventory purchased at a revised cost price), and iii) time taken to receive, review and react to data on competitor price movements in response to commodity cost changes.

[96] Another retailer told us that it has moved over 50 stores off daily-lag pricing onto weekly-lag pricing which can give some price stability when Platts is particularly unpredictable as price changes can be held off for a few days.

increased levels over a number of weeks or months, further analysis may be needed to explore the underlying reasons.

Analysis of retailers' margins

8.26 In order to extend our analysis beyond looking at retail spreads and to analyse companies' profitability over time, we requested retail management accounts from a sample of retailers. Management accounts are produced and relied upon by the retail companies, so should provide a good measure of how a firm considers it is performing over time.

8.27 Unfortunately, due to the nature of the management accounting information we received we have not been able to assess true margins but instead have largely assessed '**Fuel margins'** (being the difference in the cost of acquiring fuel and the revenue generated from the sale of fuel as reported in the management accounts divided by the reported fuel revenue). We recognise that this has limitations in that we are not able to assess the extent to which any increase in fuel margins we have observed could be explained by an increase in operating costs. Furthermore, there may be some inconsistencies in how these fuel margins are reported across firms. More detail on this is set out in paragraphs 8.31 to 8.38.

8.28 Where we have sufficient information, we have also calculated '**Operating Margins'** for their fuel business**.** These are calculated by dividing reported operating profit by total fuel revenues.

8.29 We are of the view that the reported fuel margins are useful in identifying broad margin trends over the period we have examined and also in giving an indication of the levels of margin in the retail sector. We consider that fuel margins, in comparison with retail spreads, are a more accurate representation of the profitability of the retail sector as they include the input cost to the specific retailer of the fuel sold and the revenue generated by its sale (although they exclude other operating costs).

8.30 In this section we begin by explaining our approach to examining margins, the methodology we have applied and the limitations to this approach. We then present an analysis of fuel margins across all retailers in our sample, before moving on to analyse supermarket operating margins.

Methodology

8.31 In order to assess the profitability of UK retailers we adopted a case study approach involving 13 of the largest retailers, including the four major supermarket retailers and MSA PFS operators. Within this group of 13 retailers there were four retailers from whom we did not receive suitable management accounting information. This was due to the way their wider activities are integrated within

their retail businesses and in turn how they report on these. The results reported below are therefore based on this subset consisting of nine of the largest retailers.

8.32 We received annual management accounting information for the periods from January 2017 to December 2020, and monthly management accounting information from January 2020 to August 2022. This time period was selected so that we could assess profitability over a period that included the impact of both the covid pandemic and the Russian invasion of Ukraine. It also enabled us to assess profitability in a time period that excluded the impact of both these events.

8.33 As stated in paragraph 8.27 there was significant variation in the basis on which these management accounts were prepared. Most supermarkets prepare separate management accounts for their fuel business with some operating costs (for example staff costs and utilities) allocated to them. Some supermarkets submitted there are many costs relating to the fuel business that are not included in their management accounts. In particular:

(a) some stated that many of the costs of operating their PFS sites were included in the management accounts of the supermarket site rather than the PFS business.

(b) some stated that there is no allocation of group overheads such as central administration, IT marketing and brand costs that are needed to support the fuel business.

8.34 In contrast, many non-supermarket retailers did not prepare separate management accounts for their fuel business, but instead produced them on a consolidated basis with other related activities such as convenience store activities on the PFS site. These management accounts do not allocate any operating costs (such as staff costs, site maintenance and rent) between the fuel business and these other activities. As a result of this we are unable to assess operating margins for these respondents' fuel activities but rather can only assess the fuel margins they report.

8.35 The overall result of this is that the operating margins reported via the management accounts are likely to be overstated due to the exclusion of these costs.

8.36 We are also aware that movements in the underlying refined petrol and diesel price may impact the total revenue figure which acts as our denominator and in turn impact the margin we have calculated.

8.37 We appreciate that there may be some variation in the allocation of ancillary costs to reported fuel margins. Furthermore, we also note that different accounting methods of allocating fuel stock to the fuel sold (for example First in First Out

(FIFO) or weighted average values) are used by respondents which may have some impact when reporting monthly data.

8.38 However, as set out in paragraph 8.29, despite these limitations we still consider that this data is useful in identifying broad margin trends over the period and in giving an indication of the levels of margin in the retail sector.

Retail sector fuel margins

8.39 As shown by Figure 8.2 and Figure 8.3 below when we examine fuel margins on an annual basis this appears to indicate a difference in trend between supermarket and non-supermarket retailers.[97] In summary on an annual basis:

(a) the non-weighted average[98] supermarket and non-supermarket retailers fuel margins both show an increase in the period.

(b) however, the non-weighted average supermarket fuel margin increases at a greater rate than the non-supermarket fuel margin increasing 3 percentage points (from 4% to almost 7%) over the period compared to a 2 percentage point increase for non-supermarket retailers (increasing from over 6% to over 8%).

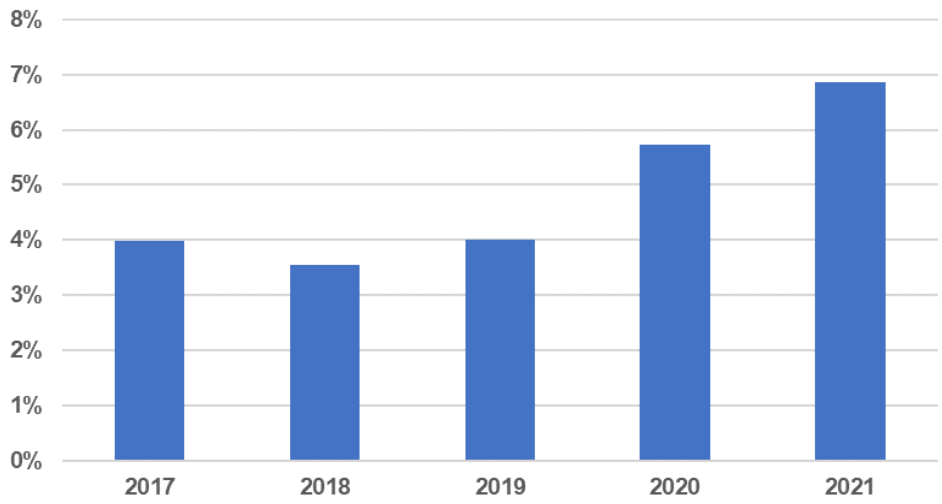
(c) on an absolute basis, however, supermarket fuel margins still appear to be below the average fuel margins of non-supermarket retailers.

8.40 As stated above in paragraph 8.27 this analysis of fuel margins does not include operating costs. Therefore, we are unable to say at present whether this increase in fuel margins is offset by rising operating costs. We also note that covid restrictions may have impacted volumes and in turn profitability in 2020 and 2021.

[97] In this context it is worth noting each retailer prepares management accounts based on their financial year end which may or may not correspond to a calendar year. Where the financial year differs from a calendar year we have used the financial year with the most overlap with the calendar year used in the graph

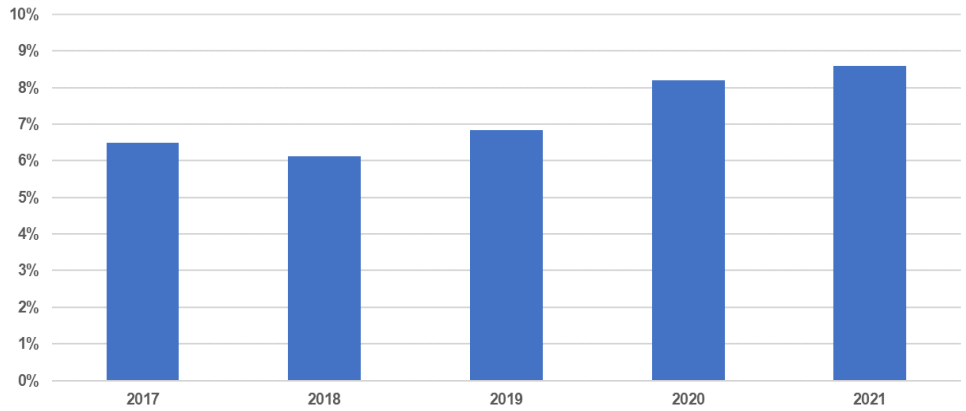
[98] This is a simple average of retailers' margins and is not adjusted for the relative size of each retailer.

Figure 8.2: Average annual supermarket fuel margins from 2017 to 2021



Source: CMA calculations based on parties' submissions.

Figure 8.3: Average annual non-supermarket fuel margins from 2017 to 2021

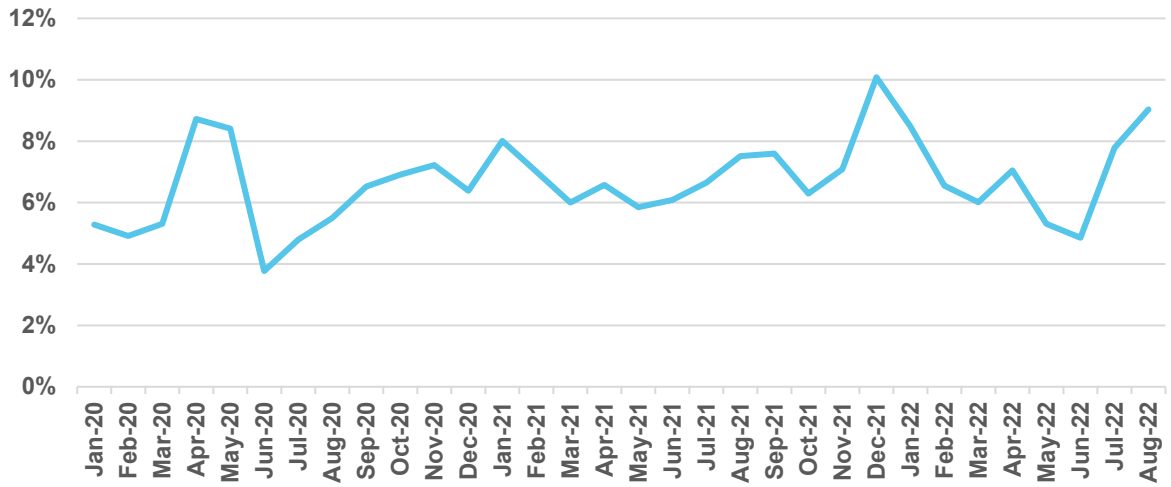


Source: CMA calculations based on parties' submissions

8.41 As set out in paragraph 8.32, in addition to annual management accounts we also requested monthly management accounting data for the period from Jan 2020 to August 2022. Similarly, to the annual data we have shown these for both supermarket and non-supermarket retailers separately in Figure 8.4 and Figure 8.5.[99]

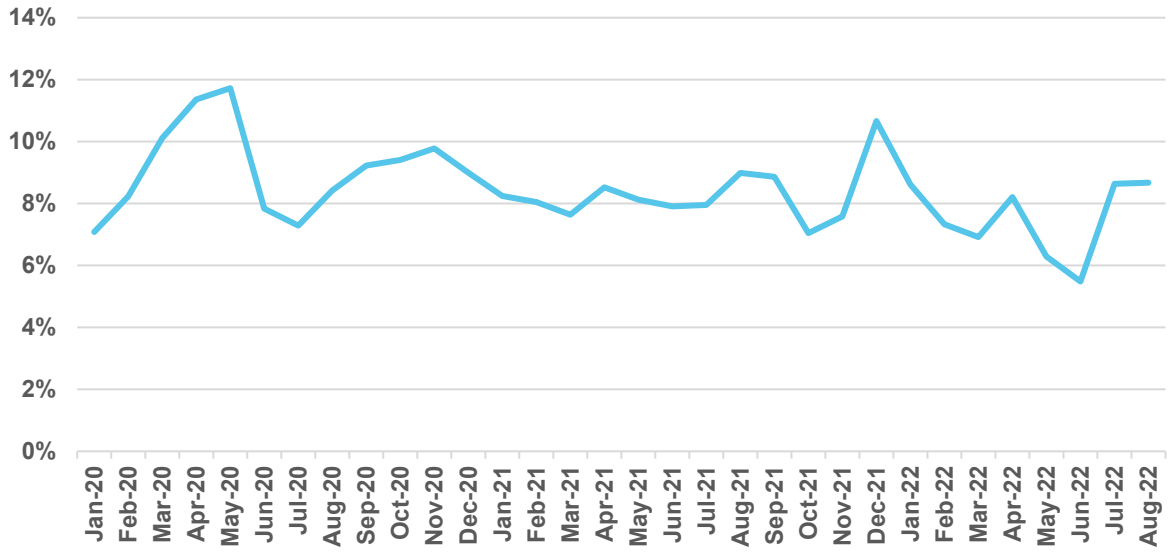
[99] Note supermarkets report on 52-week cycles. The information we have been provided in respect of supermarkets therefore reflects rolling 4-week periods rather than calendar months.

Figure 8.4: Average monthly supermarket fuel margins January 2020 to August 2022[100]



Source: CMA calculations based on parties' submissions.

Figure 8.5: Monthly Non-Supermarket Fuel Margins January 2020 to August 2022



Source: CMA calculations based on parties' submissions.

8.42 In respect of both supermarkets and non-supermarket retailers this indicates:

(a) there is significant volatility in monthly margins. We note that the annual trends described above could be significantly impacted by certain spikes.

(b) we note that average margins appeared to be trending downwards from March 2022 before rising again in July 2022. This seems to indicate retail margins trending in the opposite direction to refining margins as set out in

[100] Please note the subset of supermarket retailers in the monthly and annual graphs varies due to the availability of the relevant information.

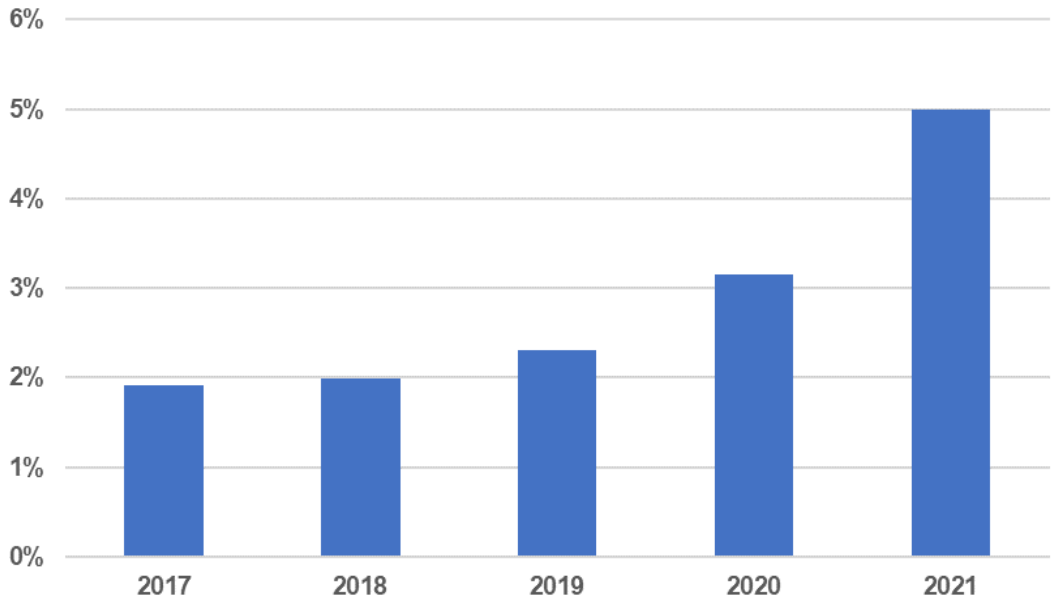
Section 6 Refining: Profitability Margins (when one goes down the other goes up).

Supermarket Operating Margins

8.43 As set out in paragraph 8.33, some of the major supermarket retailers produce separate management accounts for their fuel business which allocate some operating costs to this business. As per paragraph 8.33 above, some supermarkets have submitted that these exclude a number of costs relating to the running of this business such that the margins reported are likely to be overstated.

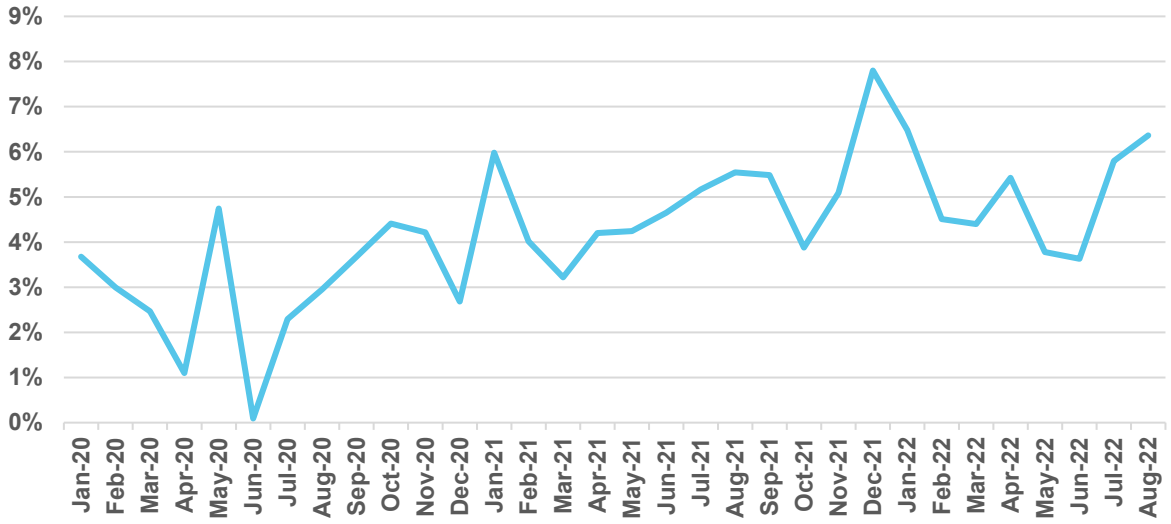
8.44 Figure 8.6 and Figure 8.7 below show these operating margins on an annual and monthly basis respectively. These largely follow the trends set out at paragraphs 8.39 and for monthly and annual fuel margins respectively. One exception is that the monthly spike in fuel margins in March 2020 is replaced by an operating loss and a negative margin on an operating margin basis due to the extremely low volumes caused by the covid lockdown.

Figure 8.6: Average annual supermarket fuel operating margins 2017-2021



Source: CMA calculations based on parties' submissions.

Figure 8.7: Average monthly supermarket operating margins January 2020 to August 2022[101]



Source: CMA calculations based on parties' submissions.

Conclusions on retailer margins at a high-level

8.45 Supermarkets have had lower fuel margins over the period than non-supermarket retailers on average, based on the sample of non-supermarket retailers we examined. We note that our analysis of fuel margins between supermarkets and non-supermarkets excludes operating costs. To the extent that the profile of these differ between these two groups (for example due to synergies available from other business areas) this could result in different absolute margins.

8.46 Over the period 2017-2021 we have seen significant year-on-year fuel margin and operating profit growth for supermarkets' fuel businesses based on the management accounts we have been provided. However, we note from supermarkets' submissions, that these margins may omit some costs and to the extent these costs have risen over the period they could offset fuel margin increases.

8.47 We have also observed growth in the non-weighted average non-supermarket retailers fuel margins from 2017 to 2021. However, we note that this rate of growth, an increase of two percentage points from 6% to 8%, is lower than the rate of growth observed in average supermarket fuel margins. These increased by three percentage points from 4% to 7%.

8.48 Monthly fuel margins for all retailers over the period January 2020 to August 2022 have been highly volatile. Individual spikes arising from this volatility may be

[101] Please note the subset of supermarket retailers in the monthly and annual graphs varies due to the availability of the relevant information.

having a significant impact on the annual figures. In particular we see since March 2022 retail margins trending in the opposite direction to refining margins (ie when one goes up, the other goes down), which as noted above has been very volatile over this period.

8.49 In the next phase of our work we will examine further the operating costs of PFS retailers in order to get a better understanding of margins over this period.

Responsiveness of prices to wholesale cost changes

8.50 In this section of the paper, we consider whether the way in which retail prices respond to changes in wholesale prices could be an explanation for the increase in margins that we observe in paragraph 8.39 to 8.48.

8.51 The Urgent Review[102] published by the CMA in June 2022 addressed media reports and statements from some motoring organisations that retailers were 'profiteering' from increases in pump prices which have occurred in recent months and that pricing exhibited 'rocket and feather' characteristics. Rocket and Feather pricing would occur if pump prices increased swiftly following rises in the input price; while taking longer to decrease following a fall in input prices.

8.52 To examine whether 'rocket and feather pricing' has been present, we have analysed the time taken for cost changes at the wholesale level to reflect in retail prices and the degree to which positive and negative changes are symmetric.

8.53 Our approach to estimating the speed of pass-through is described in detail in Annex B. As explained there, we have observed a significant increase in the volatility of wholesale prices and the retail spreads (see paragraph 8.21) following the Russian invasion of Ukraine in February 2022. Since this could change the relationship between wholesale costs and pump prices – which is supported by some evidence we have received from retailers (see paragraph 8.13 - 8.14 above) - we have estimated the speed of pass-through separately for two periods:[103]

(a) the first covers the entire period from January 2015 to August 2022 (full period),

(b) the second covers the period from 2015 to January 2022 (truncated period).

[102] During the rapid review the CMA focused its analysis on retail spreads and was particularly concerned with whether a 5p per litre reduction in duty was passed on fully and in a timely manner. Given the shorter time frame associated with a rapid review, the CMA could not draw from any econometric insights. This has been done as a part of the current market study.
[103] If sufficient data were available, we would estimate the model separately for post February 2022 and test whether the results were different. However, we do not have access to sufficient data to do this.

8.54 In order to be able to evaluate the speed of pass through for the market in general, and how it varies for different market participants, we have carried out our analysis using both national and site level data. The results are set out below.

National level evidence in UK fuel markets

8.55 In this section we first present the results our analysis based on national average price data, before presenting our analysis based on site level price data.

8.56 The graphs[104] in Figure 8.8 shows the results of this analysis. These charts show that even after 5 weeks, only around 80% of a shock in wholesale prices has been passed through to retail customers (this effect is the same for both petrol and diesel, and for both increases and decreases in wholesale price).

8.57 When analysing the truncated dataset (ie excluding data from February 2022 onwards), we find no evidence of asymmetry in the patterns of passthrough (ie no evidence of 'rocket and feather pricing').

8.58 When we extend the data set to include the most recent period, which is a period characterised by a high wholesale cost and the spreads volatility, we find that there is evidence of rocket and feather pricing:

(a) for diesel, the rate of passthrough is higher for positive shocks than negative shocks in all weeks considered, and the difference is statistically significant (ie likely not due to 'noise' in the data) for weeks 1 and 2 after the shock;

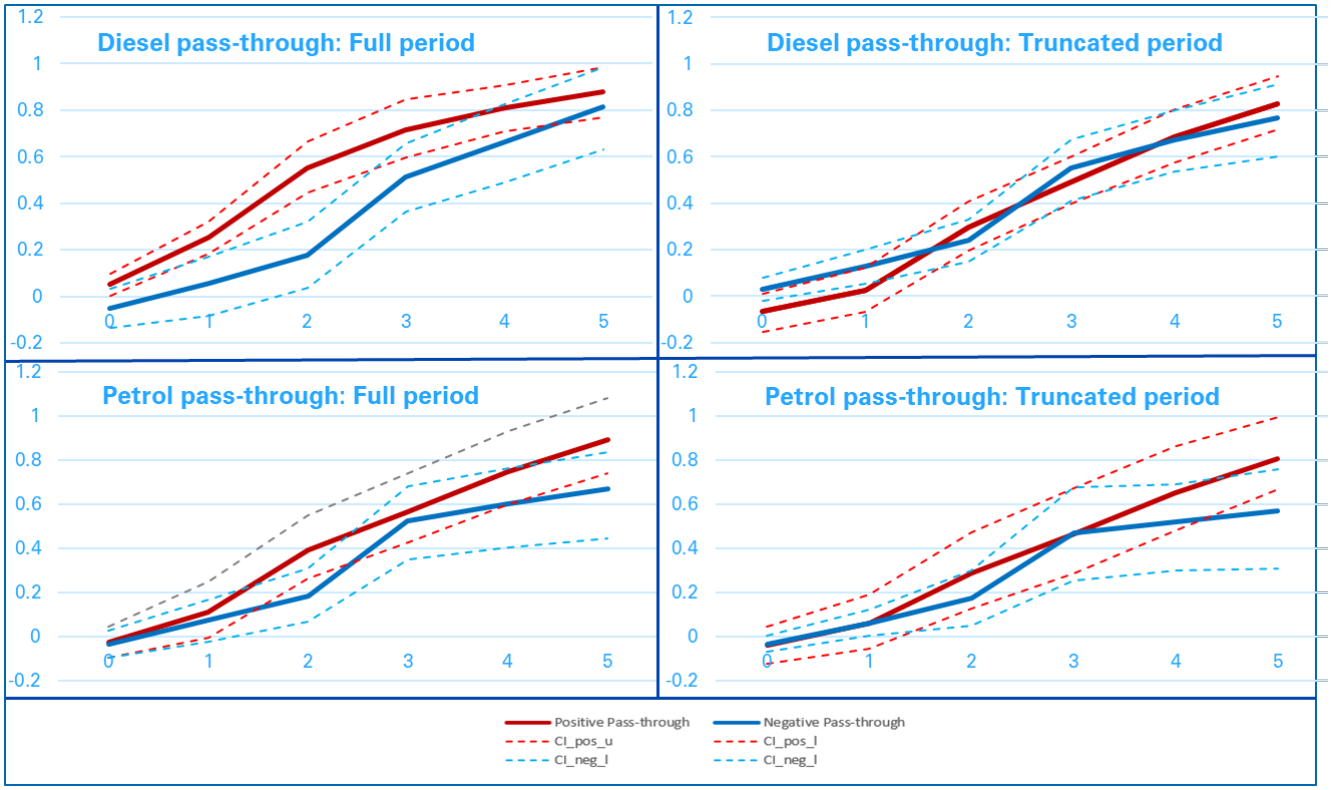
(b) for petrol, the rate of passthrough is higher for positive shocks than negative shocks for some weeks, and the difference is statistically significant for week 2 (though this result is marginal and depends on the precise methodology used).[105]

8.59 As can be seen in Figure 8.8 below, the principal difference between analysis for the full time period, compared with the truncated time period, seems to be an upward movement in the positive pass-through curve. This suggests that retailers have been somewhat quicker to pass on cost increases in 2022 compared to the preceding years; this is particularly true for diesel. As explained in Annex B, these results are driven primarily by the industry's response to cost shocks in only two to three weeks around March and April 2022. Thus, it is not clear whether the more pronounced gap between negative and positive passthrough that we observe for diesel when we include recent data reflects a persistent change in pricing

[104] In each of these charts, the red line shows the share of a 1p increase in wholesale prices that is reflected in retail prices after one week, two weeks, etc. The blue line shows the equivalent quantity for a 1p decrease in wholesale prices. The dotted lines represent confidence intervals.
[105] The difference between the positive and negative passthrough rates is statistically significant when using a one-tailed t-test, but not when using a 2-tailed t-test. For all other time horizons the difference is not statistically significant irrespective of the particular methodology used.

behaviour, or just the effect of abnormal responses to extreme volatility around these few weeks.

Figure 8.8: Pass-through rates for diesel and petrol across the 2 time periods considered



Source: BEIS, Platts, Bloomberg and Bank of England data, and CMA analysis.
Note: The solid red and blue lines correspond to pass-through rates for a positive and negative cost shock respectively. The dotted red and blue lines are confidence intervals (at 95%) corresponding to the given pass-through line. In general, when the confidence intervals do not interact, we detect the presence of rocket and feathers

Local level evidence in UK fuel markets

8.60 To complement the analysis of national average prices, we have applied the same methodology to site-specific price data sourced from Experian (this data is described in Annex A). The purpose of this additional analysis is to understand whether patterns of pass-through differ across retailers. We have done this analysis for the largest 10 retailers (by number of sites). Like before, we have conducted this analysis for both the full period and the truncated period to understand the role of recent volatility in driving the rocket and feather findings.

8.61 The detailed results and charts are presented in Annex B to this report. Similar to the analysis of aggregate data presented above, these results show that wholesale cost shocks are not entirely passed on to retail prices after five weeks. Around 80% of the wholesale cost shocks are reflected in retail prices at the end of five weeks (irrespective of the particular fuel considered or whether the shock was positive or negative).

8.62 Also similar to the analysis of aggregate data, the results of this analysis differ markedly depending on the time period considered. If the recent months are omitted (ie when we analyse the truncated period data), pass-through is symmetric for most retailers, with evidence of rocket and feather pricing only for a few retailers, mostly dealer groups. This is true for both diesel and petrol. However, when the full period is considered, we see clearer evidence of rocket and feather pricing for all of the largest 10 retailers. Also, for those retailers that do exhibit evidence of rocket and feather pricing in the truncated sample, the extent of that asymmetry increases when the full sample is considered.[106] The extent of the asymmetry also seems to be more pronounced for diesel relative to petrol.

Extent to which 'rocket and feather' explains changes in margins

8.63 Our analysis suggests that, while rocket and feather pricing was seen in relation to a few retailers before 2022, it has only become more prevalent and more pronounced recently, especially for diesel. In contrast, our analysis of margins suggests that there has been a long-term trend of increasing margins since at least 2017. As such, we do not consider that rocket and feather pricing can be an explanation for the trend of increasing margins, since rocket and feather was not widely observed prior to 2022.

8.64 We have gone on to consider whether the presence of a degree of rocket and feather pricing could be in and of itself harmful. Rocket and feather pricing means that spreads rise above their long-term average when wholesale costs decrease.[107] However, it does not follow that the lower spreads observed while wholesale prices are stable or increasing are the 'fair' benchmark, and that suppliers are making excess profits when spreads rise above these lower levels. It is possible that suppliers would not cover their cost of capital if they could only charge these lower spreads permanently. The business case of petrol stations may depend on expected average spreads throughout the price cycle, not just the lower spreads realisable when prices are stables or increasing.

8.65 Since rocket and feather pricing refers to the speed with which wholesale cost shocks are passed on to pump prices, it is necessary to look at whether prices, and thus margins are higher over the medium term under this strategy than they would be otherwise, to determine whether consumers are worse off. If rocket and feather pricing were associated with increased profitability for retailers, we would expect to see margins increase during times when we observe rocket and feather pricing.

[106] The extent of the asymmetry is the gap the positive and negative impulse response functions.
[107] Consider a scenario in which suppliers adjust retail prices with a lag, but at the same rate for increases and decreases in wholesale prices. This would imply that the spread increases when wholesale prices decrease, and decreases when wholesale prices increase. Rockets-and-feathers pricing dampens that effect when prices increases, and exacerbates it when prices decrease.

8.66 The evidence we have suggests that rocket and feather pricing has become more common and more pronounced in recent months, and although this period has seen increases in spreads as discussed in Section 5, the data we have available currently does not indicate that margins have increased during this time. Therefore, currently we do not have evidence to suggest that rocket and feather has resulted in increased profitability for retailers. However, we note that it may take some time for the effects of rocket and feather pricing to feed through to margins. It is therefore something that we need to understand better, particularly whether it could exacerbate any long-term trend of increasing margins.

8.67 Given that we observe a change in pricing patterns in 2022, this does raise the question of what else could explain why rocket and feather pricing has emerged. Looking at what is different in 2022 compared to previous years, we note that there has been a supply shock from the Russian invasion of Ukraine and the subsequent move away from imports of Russian refined product. It is possible that this may cause a particular issue in the diesel market (which has displayed rocket and feather behaviour more prominently) where there is a greater reliance on imports, with North West Europe historically sourcing significant quantities from Russia.

8.68 As reported at para 8.13, one supermarket told us that they responded to the Ukraine crisis by enacting a new price rule [✂]. They explained that this was to ensure that [✂] in doing so, price their inventory at an appropriate competitive level considering the need to ensure that they have security of supply across grades and sites, and that they have the availability to enable customers to purchase the fuel of their choice at any time. [✂].

8.69 If retailers are not certain that they can source the fuel to meet expanding demand, they might be less keen to price more competitively than their rivals. Retailers might then be incentivised to increase their prices faster when wholesale costs increase, and to decrease their prices more slowly when wholesale costs decrease (though the evidence for this weaker).

8.70 We will conduct further analysis to consider how rocket and feather pricing develops and whether this results in increasing profitability.

8.71 To understand the reason behind the apparent existence of the asymmetry of passthrough, also known as rocket and feather pricing, we have observed, since the beginning of 2022, we would welcome responses from retailers and other market participants on:

(a) the extent to which they recognise the pattern our analysis has identified; and

(b) why it happens.

Local and regional variations in price

8.72 As well as variations in prices and margins over time, we also committed at the launch of our market study to examine local and regional variations in prices in the UK and the extent to which weaknesses in competition might be driving higher retail prices and the impact of underlying cost differentials in certain parts of the UK on road fuel prices.

8.73 We have heard a number of concerns in relation to geographical price variation, both directly (through contact from members of the public and elected representatives) and indirectly (through press reports, parliamentary questions and so on). In particular, we have seen concerns that:

(a) some regions and sub-regions of the UK have higher prices than others.

(b) rural areas have higher prices than urban ones, and motorway service areas have much higher prices than other sites.

(c) prices can vary widely within a relatively small geographic area.

(d) prices can vary widely across a single supplier or brand.

8.74 To consider these claims, we first need to know how far they reflect the actual prices observed in the economy. We have therefore used a national dataset of daily prices to find information on how different characteristics relate to average prices.

8.75 Second, where we do observe differences in average prices, we want to know what factors are leading to these differences. In particular, we want to know the importance of different factors and whether they can be attributed to different groups, relating to whether they are a cost factor or a competition factor:

(a) factors relating to differences in costs between different areas, which will feed through into the pump price that is required to maintain a viable PFS.

(b) factors relating to how competition works in different areas, such as the number and type of local competitors, and in particular the extent to which we see higher prices in areas with fewer competitors, or without any competitors of a particular type (eg supermarkets), may indicate a weakness in the intensity of the competitive process in those areas.

8.76 It is important to note, however, that it is unlikely that we will be able to neatly divide factors into those that only relate to cost and those that relate to competition, as these two categories interact. For instance, areas with lower levels of demand are less likely to be able to support a supermarket, therefore removing a possible source of downward pressure on local prices. Nonetheless, understanding as best as we can which factors contribute to higher prices in some

areas, and whether these primarily relate to competition or costs, is vital to directing our efforts to consider what measures may be taken to address them.

8.77 Third, where we do see factors that are driving higher prices for consumers in some locations, we will consider ways of addressing these concerns.

8.78 In this section, we therefore begin by summarising the views of market participants, before providing some information from our data analysis to compare prices across different geographical sites. We then go on to report some emerging findings from our initial economic modelling to explore how sites with the highest prices differ from more averagely-priced sites, along a number of dimensions that we think may be associated with higher prices, on the basis of our modelling work and the views from market participants. Finally, we set out how we intend to take this work further to give us firmer conclusions in our forthcoming interim report.

Evidence from market participants

8.79 Most retailers including oil majors and supermarkets adopt a strategy of setting prices for each of their PFSs by taking into account local competitive conditions as well as other local factors. The number and identity of nearby PFSs will have the greatest impact on local prices. As discussed from paragraph 8.122 onwards, our analysis shows that supermarkets tend to have lower prices than non-supermarket retailers, consistent with this we were told that areas with a supermarket PFS are likely to have cheaper fuel than those without. Retailers told us that they adopted a single strategy across the country.

8.80 Retailers said that for some PFSs the cost of delivering the fuel will be greater, as they are located further from a terminal. As a result, they may charge a higher price to cover their higher costs, however some retailers have a standardised set of delivery charges, which cover all of their PFSs, no matter how far they are from the fuel terminal. One retailer told us distribution costs vary from 0.25 ppl for PFS closest to a terminal to 2 ppl for the most remote locations. This price is also dependent on whether a full or partial load is delivered.

8.81 Retailers also reported taking volumes into account when setting prices. It is likely that in locations with lower volumes the price will be higher in order to cover the operating costs of the site.

Extent of geographic price variation

*(i) Regional and sub-re*gional price variation

8.82 We have looked at the extent to which average prices vary by region, and compared them to London, which we use as a baseline. On average, the cheapest region was Northern Ireland, where petrol was on average 4.8ppl cheaper, and

diesel 4.1ppl cheaper than in London. The fact that we observe prices that are significantly lower in Northern Ireland is likely due to the fact that PFSs there are competing with PFSs across the Irish border, which are subject to a range of different dynamics.

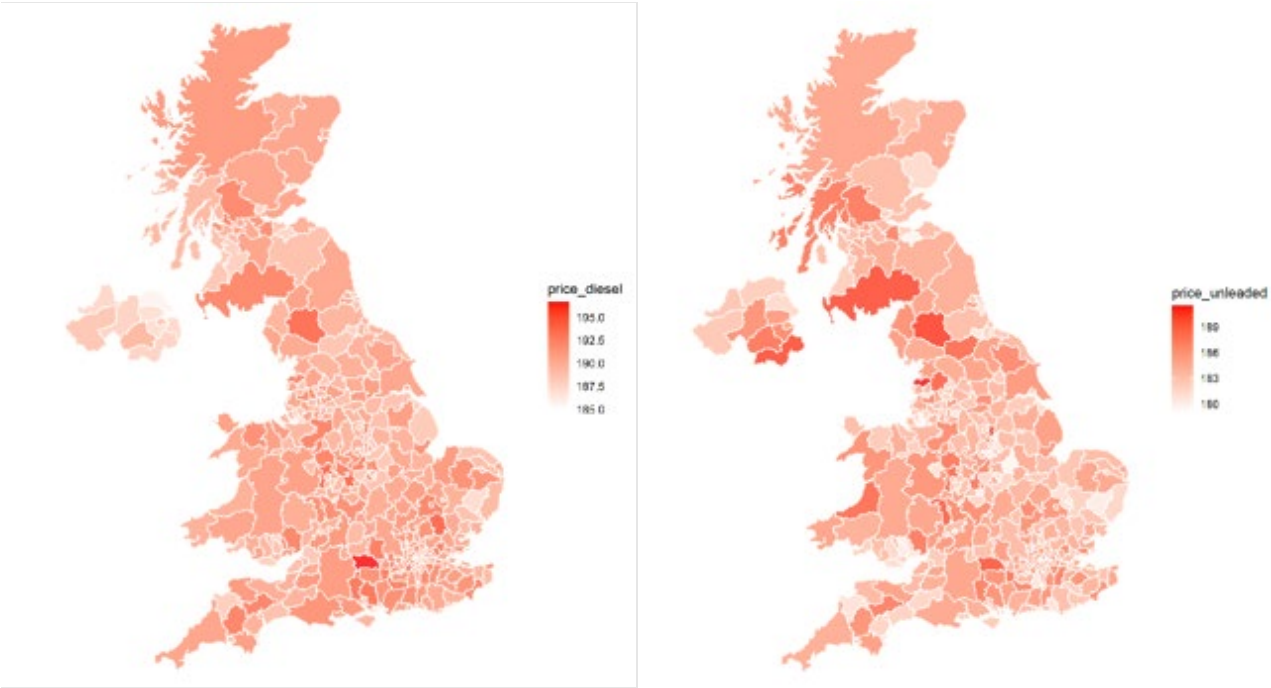
8.83 Among the other regions and nations of the UK, differences in average price were much more modest. For each of Wales, East Midlands, West Midlands, Yorkshire and Humber and the North of England we see cheaper average prices for petrol and diesel than in London, with gaps ranging from 0.7ppl to 1.8ppl. In the East of England, petrol is marginally more expensive than London (0.03ppl) but diesel is a little cheaper (0.3ppl). Only in the wider South East do we see petrol that is more expensive than London by an appreciable margin (0.4ppl) and diesel that is also more expensive than London (though only by 0.02ppl).

8.84 We have also considered prices at the local level. Figure 8.9 shows how the average price varied by local authority area separately for diesel and petrol, for the week of 11th June 2022 (the most recent week available in the Experian data). This indicates that there was a moderate level of dispersion in average prices across different local authorities, ranging from 185ppl to 197ppl for diesel, and from 179ppl to 200ppl for petrol. This is a greater level of dispersion than we have observed than among regional averages. There would of course be further variation between sites within each local authority area.

8.85 Figure 8.9 also shows that local authority areas that have higher average prices of petrol also tend to have high average prices of diesel of fuel, and similarly for lower prices.[108]

[108] For each week at the local authority level, there is generally high correlation between average petrol and average diesel prices (>0.8 in vast majority of weeks). This would indicate that local authorities with relatively high average diesel prices also have relatively high petrol prices (and similarly for low prices). Also, the dispersion of prices is relatively similar across time, with a standard deviation averaging 2ppl between June 2017 and June 2022 and remaining between 1.5 and 3ppl for most weeks. This indicates that changing the week will not substantially change the price dispersion we see in the figure.

Figure 8.9: Heat map of average price for Diesel (left) and Petrol (right) by local authority, week of 11th June 2022



Source: Experian and ONS data and CMA analysis.
Note: the following Scottish Islands are excluded from the map as the high average price means it is more difficult to see price dispersion in the rest of the UK: Na h-Eileanan Siar (194ppl for diesel and 200ppl for petrol), Shetland Islands (193ppl for diesel and 197ppl for petrol), and Orkney Islands (193ppl for diesel and petrol).

(ii) Urban versus rural and motorway site variation

8.86 We have also considered price dispersion by PFS depending on whether they are in an urban, rural or motorway location.[109] Table 8.1 and Figure 8.10 below set out what we have observed.

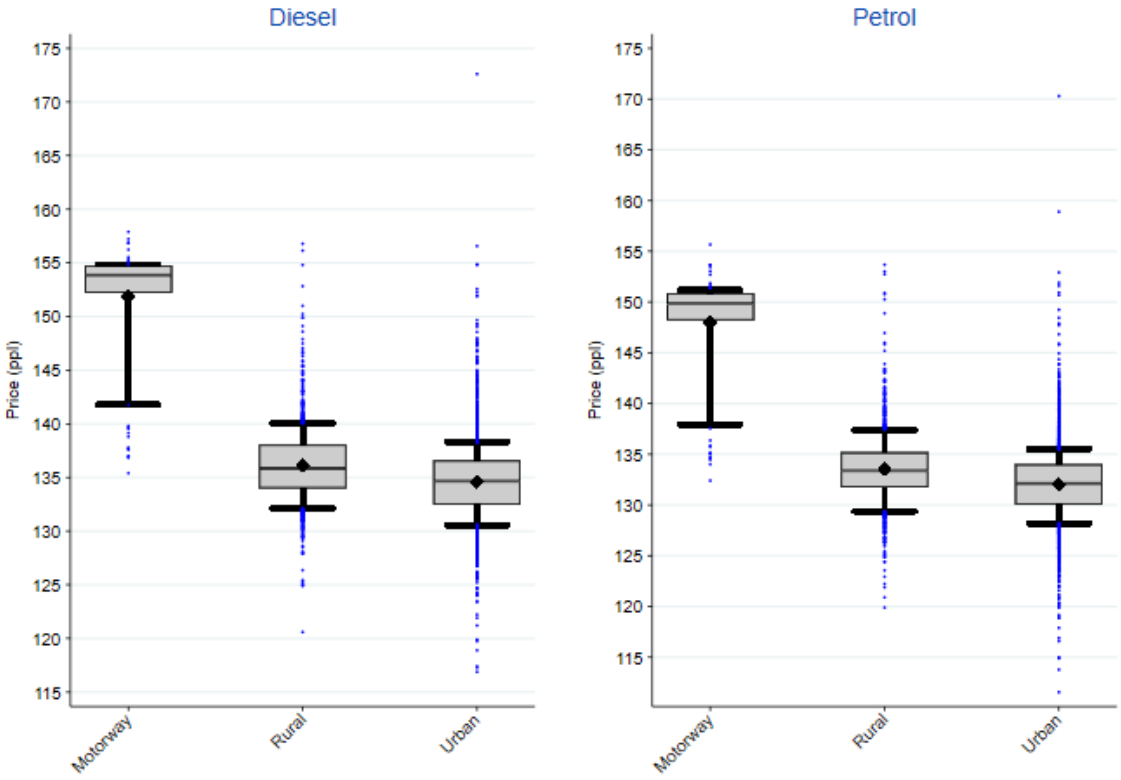
Table 8.1: Price dispersion by location type and fuel type, 2021

Measure	Diesel			Petrol		
	Motorway	Rural	Urban	Motorway	Rural	Urban
Mean	151.8	136.1	134.6	148.0	133.5	132.0
10th percentile	141.8	132.1	130.6	138.0	129.4	128.2
25th percentile	152.2	134.0	132.5	148.2	131.7	130.0
Median	153.9	135.9	134.7	149.8	133.4	132.1
75th percentile	154.8	138.0	136.6	150.9	135.2	134.0
90th percentile	154.9	140.1	138.3	151.2	137.4	135.5

Source: CMA analysis of Experian data

[109] For the purposes of this sub-section we have amalgamated Experian's residential, urban transient and industry/office location types into an "urban" location type.

Figure 8.10: Box plot for price by location type (2021)



Source: CMA analysis of Experian data

8.87 The data shows that median rural prices are 1.2ppl higher than median urban prices for both diesel and petrol. Looking at the range of prices within each category, we see that rural sites have similar price dispersion as urban sites. For diesel, the difference between the upper and lower quartiles is 4.0ppl for rural and 4.1ppl for urban. For petrol, this difference is 3.5ppl for rural and 3.9ppl for urban. This shows that the differences in price within each category (rural and urban) are significantly larger than the differences between the two categories.

8.88 Motorway PFS prices are materially higher than non-motorway prices. Motorway diesel prices are, on average, 15.7ppl higher than rural sites, and 17.2ppl higher than urban sites. Motorway petrol prices are, on average, 14.5ppl higher than rural sites, and 16.0ppl higher than urban sites. Price dispersion for motorway sites is materially lower than non-motorway sites: 2.5ppl for diesel and 2.7ppl for petrol difference between the upper and lower quartiles. This shows that the motorway prices in general are much higher than prices in non-motorway PFSs, but within the group of motorway PFSs prices tend to cluster close to the average.

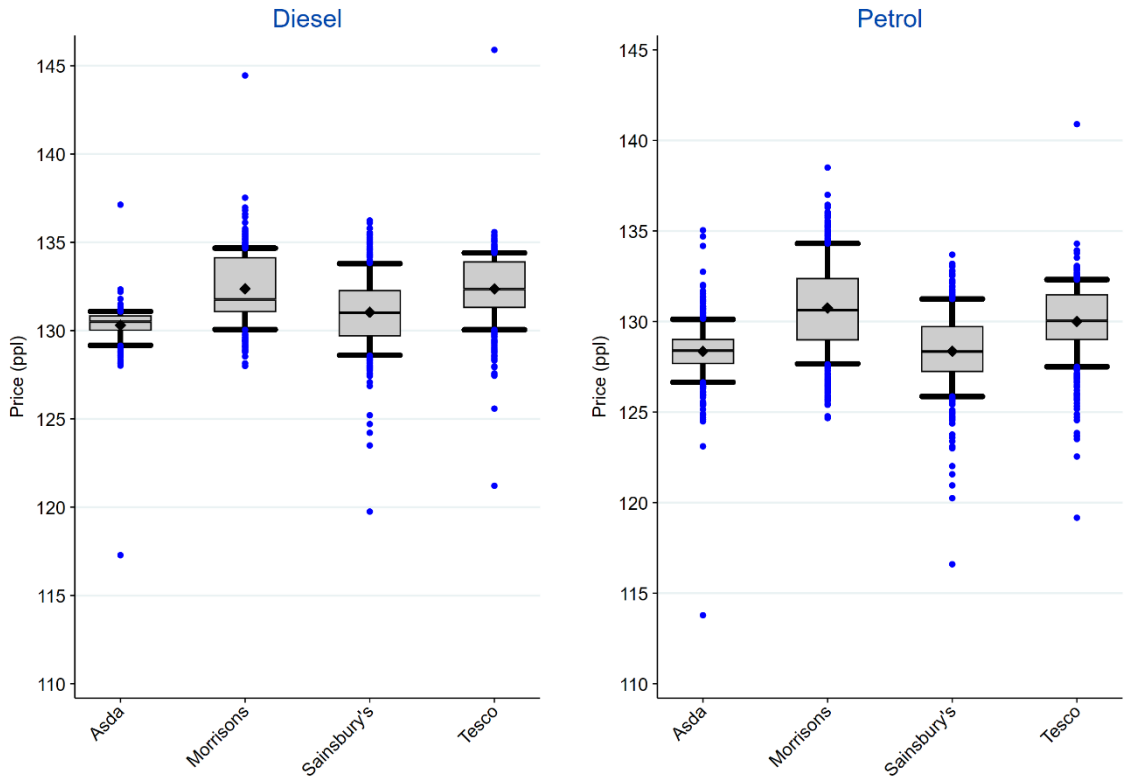
(iii) Variation within brand

8.89 We have also considered the extent to which prices vary within brands by comparing supermarket prices across their portfolio during 2021. Table 8.2 and Figure 8.11 below shows the mean, interquartile range and outlier prices for each of the main supermarket fuel retailers.

Table 8.2: Price dispersion by supermarket brand (2021)

Measure	Diesel				Petrol			
	Asda	Morrisons	Sainsbury's	Tesco	Asda	Morrisons	Sainsbury's	Tesco
Mean	130.3	132.4	131.0	132.4	128.4	130.8	128.4	130.0
10th percentile	129.2	130.1	128.6	130.0	126.6	127.7	125.9	127.5
25th percentile	130.0	131.0	129.7	131.3	127.7	129.0	127.2	129.0
Median	130.5	131.8	131.0	132.4	128.4	130.6	128.3	130.0
75th percentile	130.9	134.2	132.3	133.9	129.0	132.4	129.8	131.5
90th percentile	131.1	134.7	133.8	134.4	130.1	134.3	131.2	132.3

Figure 8.11: Box plot for price by supermarket brand (2021)



Source: CMA analysis of Experian data

8.90 As can be seen above, there is significant variation in price between different sites under the same supermarket brand – much more so than the variation between average price for different supermarkets. In some respects this finding is unsurprising – as set out in paragraph 8.10, firms set their prices for each PFS

according to local conditions. As we have observed for PFSs in general, supermarket fuel prices reflect local conditions, even if they are generally lower than others.

Conclusions on observed price variation

8.91 We have therefore observed that:

(a) at an aggregate level, differences in prices between regions are small, with the exception of Northern Ireland where average prices are significantly below the rest of the UK.

(b) average price variation between the categories of urban and rural are smaller than price differences within those categories.

(c) each of the main supermarket fuel retailers has a significant range in price within their own portfolio, reflecting local conditions.

8.92 Based on this analysis, we think the best approach is to look at the determinants of price at an individual PFS level.

8.93 For PFSs based in motorway service areas, the data tells a different story. As a group, motorway PFSs are significantly more expensive than non-motorway PFSs, and there is much more concentration of their prices around the average. We therefore think it will be most helpful to consider how motorway PFSs as a group differ from non-motorway PFSs regarding features that we suspect may be associated with higher prices.

Drivers of price variation

8.94 In order to be able to evaluate which factors are important, we have used an econometric model to assess the relationship between these different factors and prices. The model uses cross-sectional data for the UK, to show how either a change in one factor, or the presence or absence of a factor, affects price, whilst holding all other factors constant. For instance, it allows us to see how prices differs between areas with different numbers of competitors, controlling for the presence or absence of supermarkets (which may also affect prices).

8.95 In this section we present the results of our econometric analysis, focusing on the results from the set of non-motorway PFSs. In each case we illustrate the results by showing how the presence of the factor in question differs between the highest-priced 10% of PFSs and PFSs in general.

(i) Number of competitors

8.96 We have looked at how prices vary depending on number of local competitors. We have heard from industry participants that they set prices according to local conditions, and all else equal we would expect that a site with more local competitors would face more pressure to lower their prices. Our initial econometric analysis has identified that there is a material difference in price between sites with no competitors in their catchment area versus sites with one competitor. For diesel, sites with one competitor charge prices on average 0.46ppl lower than prices with no competitor; for petrol the equivalent difference is 0.26ppl.

8.97 Table 8.3 below shows that sites in the top 10% for petrol and diesel prices are more than twice as likely to have no local competitor than non-motorway sites in general. And more generally, the highest-priced sites also tend to have fewer competitors than others.

Table 8.3: Average number of competitors and sites with zero competitors (2021)

Group	Number of sites	With 0 competitors catchment (5 or 10 miles)[110]	% of sites with 0 competitors	Average number of competitors
All sites	7475	54	0.7%	24.0
Top 10th percentile for diesel price	728	13	1.8%	22.5
Top 10th percentile for petrol price	723	14	1.9%	21.6

(ii) Presence of a supermarket competitor

8.98 We have also looked at whether the presence of a supermarket is associated with lower prices. This could be the case because supermarkets tend to act as price leaders and to price lower than other PFSs, so their presence exerts a competitive pressure on other PFSs in the area.

8.99 Our analysis found that PFSs with at least one supermarket competitor are, relative to PFSs with no supermarket competitor, on average 0.44ppl cheaper for diesel and 0.54ppl cheaper for petrol. We also found that where a PFS has at least one competitor that is an Asda forecourt this is associated with an prices that are 0.78ppl cheaper for diesel and 0.76ppl cheaper for petrol, holding all other factors constant.

8.100 Table 8.4 below shows that the highest-priced 10% of PFSs for both petrol and diesel are less likely to have a supermarket competitor and significantly less likely to have an Asda competitor.

[110] The CMA defined this as a five mile linear distance radius from the centroid site for urban areas and a 10 mile radius for rural areas. This is consistent with OFT (2013), Econometric analysis on the determinants of price differences across the UK, Annex D, paragraph D.3

Table 8.4: Number of sites with competitors that are supermarkets and Asda sites (2021)

Group	Number of sites	Number of sites with a supermarket competitor	% of sites with a supermarket competitor	Number of sites with an Asda competitor	% of sites with an Asda competitor
All sites	7475	6546	87.6%	4279	57.2%
Top 10th percentile for diesel price	728	619	85.0%	324	44.5%
Top 10th percentile for petrol price	723	588	81.3%	325	45.0%

(iii) *Distance to a fuel terminal*

8.101 Our analysis shows that a 10 mile increase in distance to nearest terminal is associated with 0.07ppl higher diesel prices and 0.04ppl higher petrol prices. Although this is statistically significant, this is relatively small.

8.102 Table 8.5 below shows that the most expensive 10% of non-motorway PFSs for petrol and diesel are on average located further from the nearest terminal than non-motorway PFSs in general. However, given the small price increment associated with increased distance from the nearest terminal, this is unlikely to be a significant factor in explaining higher prices.

Table 8.5: Average minimum distance to terminal

Group	Average of minimum distance to terminal (miles)
All sites	21.8
Top 10th percentile for diesel price	24.9
Top 10th percentile for petrol price	26.2

(iv) Volume sold

8.103 The cross-sectional PCA analysis shows that an increase of 1 million litres is associated with a 0.1ppl increase in diesel and petrol prices. Although this is statistically significant, this is relatively small given that average volumes per site are approximately 4.8 million litres.

8.104 This result is somewhat surprising, as we may have expected increased volume to be associated with lower prices, as fixed costs would be able to be spread across a larger volume of sales. It may be that this hypothesis is correct, but volume sold is correlated with some other factor that acts in the opposite direction. We will consider this as we take our analysis forward.

Conclusion on drivers of geographical variation

8.105 Overall, our analysis indicates two factors that are associated with the highest-priced PFSs: number of competitors and presence of supermarket competitors (particularly, Asda competitors). At the same time, we find that distance from terminal, local population income, and volume sold do not appear to be important factors explaining why a PFS would be among the most expensive.

8.106 In the next part of the study, we will consider further the drivers of price variation at those PFSs charging the highest premium to understand the drivers of this pricing variation, and whether there are specific steps that should be taken to mitigate this.

Motorway pricing

8.107 We have found that average fuel prices at PFSs based in motorway service areas are, compared to the average for urban areas, 16.0ppl more expensive for petrol and 17.2ppl more expensive for diesel in 2021.

8.108 In this section we seek to understand the potential drivers of these differences. We first outline the operating model, and pricing strategies used by motorway PFSs. We then use data from our analytical model to compare prices at motorway PFSs to those in other areas, whilst holding other factors constant. We then examine whether these types of PFSs face greater costs, to understand how their profit margins may compare to other types of PFS.

Ownership, operating and contractual arrangements for motorway PFSs

8.109 MSA providers and chain operators have a variety of contractual arrangements. The majority are long-term leaseholds with commercially agreed fixed and variable rents, with a minority operating under freehold agreements. These variable rents can incorporate an element of fuel gross margin or be linked to the overall revenue generated by the fuel retailer on the site.

8.110 In the small number of cases where retailers operate a PFS at a particular site on behalf of a third party, contractual arrangements will vary from retailers paying rent based on a percentage of non-fuel sales, to paying a base amount of rent or both.

8.111 There were mixed views about the presence of costs and revenue differences between PFSs located on motorways and those operating outside the motorway network:

(a) one chain operator noted that there was no material difference in costs and revenue between PFSs located on motorways and those operating outside the motorway network.[111] One retailer explained that “the fact that a site is on a MSA does not necessarily trigger higher costs or revenues”.

(b) one retailer noted, however, that whilst all other processes and controls remain the same across MSA and non-MSA PFSs, motorway sites tend to “incur higher operating costs”.

[111] Comparison was between i) motorway sites and ii) similar sized sites trading similar volumes not located on the motorway network.

8.112 A large integrated operator noted that its MSA revenues are significantly higher in comparison to sites outside the motorway network. It outlined that this was due to the substantially "higher total fuel volumes sold at these MSAs ([✂] litres) compared to those sold at non-MSA sites ([✂] litres)".

8.113 It further noted that the main costs differences between MSA and non-MSA sites were driven by varying demands across five areas. According to the operator, MSA sites tended to have higher costs for logistics, property leasing and business rates liabilities whereas non-MSA sites tended to have higher staffing and capital expenditure costs.

8.114 Two additional factors were highlighted in the assessment of the costs and revenue differences between PFSs within and outside the motorway network, namely; the rate of return on investments and the impact of fuel cards:

(a) on investment times, one MSA operator told us that the rate of return on investment differs between PFSs located within and outside the motorway network. By considering the investment required to either develop a new site or acquire and expand an existing site, the operator noted that the return on investment is typically between "[✂]" for PFSs outside the motorway network and "[✂]" for PFSs located within the motorway network. The operator further highlighted that, in the case of PFSs located within the motorway network, a "substantial additional investment" was required for both developing new sites and expanding existing ones.

(b) on fuel cards, an MSA operator noted that fuel card sales attracted lower margins whereas a retail operator told us that the average profit margins in fuel cards were significantly less than the margins on fuel sold using conventional debit cards. Some of the respondents commented on the contribution of fuel cards to the overall fuel volumes sold. One chain operator noted that fuel cards contributed to overall volumes which "in turn [helped] increase revenues from other products sold at site to fuel card customers". The proportion of volumes from fuel card sales is up to around 80% for motorway retailers.

Pricing strategies on motorway service stations

8.115 MSA retailers have a different pricing strategy from other retailers. They observe the prices of national competitors (other MSAs) and price their private fuel on achieving a set margin which is higher than the targets of non-MSA retailers.

8.116 One MSA told us that they price fuel at their MSA filling stations based on three factors – the cost price of fuel, the selling price of national competitors and the

need to achieve a gross profit margin target,[112] which is higher than the gross margin targets of their non-MSA filling stations (which it explains reflects, among other factors, the higher cost of operating MSAs). Another told us that it observes pricing across a variety of retailers (including other MSAs, and non-MSA retailers) and mainly price with a view to seeking a target margin whilst remaining competitive against MSA and non-MSA retailers (reflecting the premium location and cost base of MSAs). One retailer who operates MSA PFSs told us that pricing analysts hold prices below "emotional pricing points" [✂] and negatively affecting consumers' perceptions of the brand's prices.

How pump prices compare between motorways and other PFS

8.117 In order to identify the extent to which prices in motorway service stations as a category are higher than others, our econometric model compared prices at motorway PFSs with those at urban PFSs, controlling for other factors such as region, number of local competitors, brand and volume.

8.118 Applying this analysis does result in the gap between motorway and urban PFS prices being reduced somewhat, but a significant price gap remains to be explained: 15.4ppl for diesel, and 15.0ppl for petrol.

8.119 There are three main factors that may be driving these differences:

(d) margin: motorway operators may be earning a higher margin than operators of non-motorway PFSs.

(e) costs: motorway operators may face higher costs than operators of non-motorway PFSs.

(f) fuel card usage: the greater prevalence of fuel card use in motorway PFSs may be resulting in costs being spread among a smaller proportion of consumers (those who do not use fuel cards) compared to non-motorway sites, leading to non-fuel card consumers paying a premium.

Conclusions on motorway pricing

8.120 We therefore see clear evidence of higher pump prices at motorway PFSs but at this stage it is unclear to what extent this is reflective of higher margins, higher costs and/or a more unequal distribution of those costs among consumers.

8.121 We therefore propose to investigate this issue further, in the next phase of the market study, including by considering the costs and revenues of specific

[112] We understand this to be what we refer to as 'fuel margin' elsewhere in this report.

motorway PFSs and the impact of fuel card use on the prices paid by non-fuel-card users.

The role played by major supermarkets in road fuel retail markets

8.122 In 2013, the OFT found that the four major supermarkets had increased their share of the road fuel sold in the UK from 29 per cent in 2004 to 39 per cent in 2012. It found that the growth of supermarkets appeared to have had a positive impact for motorists.

8.123 Supermarkets sell a significant volume of fuel, with average sales in 2021 of 10.6 million litres per site, compared to 4.9 million litres per site for a company-owned site.[113] This higher sales volume, coupled with the ability to contract across their portfolio, means that supermarkets have significantly more purchasing power when procuring wholesale road fuel. This means that they are likely to be able to source fuel for a lower cost than other retailers, which will give them the ability to sell fuel at a lower price.

8.124 Supermarkets are also multiproduct retailers, and as such can increase sales of one product by offering a different product at a lower price. Since, fuel prices are publicly displayed, supermarkets may have an incentive to price fuel very competitively in order to draw customers to their store and sell them groceries. This 'halo' effect may lead supermarkets to sell fuel at a lower price, and even potentially sell it at a loss, than if they were a single product retailer.

8.125 In this section, we examine whether supermarkets retain their position as the lowest-priced offering in the market. We begin by looking at simple statistics which show the price gap between supermarkets and other types of operators and how this varies over time. We then use the cross-sectional price concentration analysis to control for observable site characteristics which may be correlated with price (for instance, supermarkets could locate in areas that are nearer fuel terminals), and to identify the relationship between both supermarkets in general and price, and individual supermarket fascia and price. Lastly, we extend our analysis by exploiting a time series data set to model the effect of supermarket entry and exit on price, this shows how prices in an area respond to the entry (or exit) of a supermarket fascia and as such identifies causation between the supermarket and price.

[113] Based on CMA analysis of Experian site data for 2021Q1. Experian annual volumes for sites are estimates and are not specific to a particular year, and so our calculation of average volumes should be interpreted with caution. Also note, only sites that have an "open" status in 2021Q1 are included in the calculation of average volumes per site. The number of sites indicated by Experian's price data and Experian's site data will not be consistent as around 10% of sites in Experian's site data do not report prices in the Experian price data.

Views from market participants

8.126 As mentioned earlier in this section, supermarkets tend to have lower prices than non-supermarket retailers. Asda told us that it sees itself as the price leader as well as being the first retailer to drop prices in response to wholesale cost decreases. The other supermarkets compete strongly with each other using pricing strategies that lead to lower prices where there is another supermarket close by. As non-supermarket retailers told us they use pricing rules based on the price of competing PFSs in principle this should lead to lower prices across all PFSs in areas where there is a supermarket PFS present. This is confirmed by our econometric analysis set out from paragraph 8.131.

Price difference between supermarkets and other types of PFS

8.127 In this section, we look at the price difference between supermarkets and other types of PFS. This analysis does not attempt to control for factors that may lead supermarkets to have lower prices, for instance, supermarkets could be located in areas with more competitors, which results in prices being lower.

8.128 Table 8.6 below shows the average price differential for company and dealers' sites relative to supermarkets. For diesel, the average price for supermarket sites is 5.8ppl below that of company owned sites and 4.8ppl below that of dealer owned sites. For petrol, the average price for supermarket sites is 5.7ppl below that of company owned sites and 4.9ppl below that of dealer owned sites.

Table 8.6: Average price differential relative to supermarket sites, June 2017 – June 2022

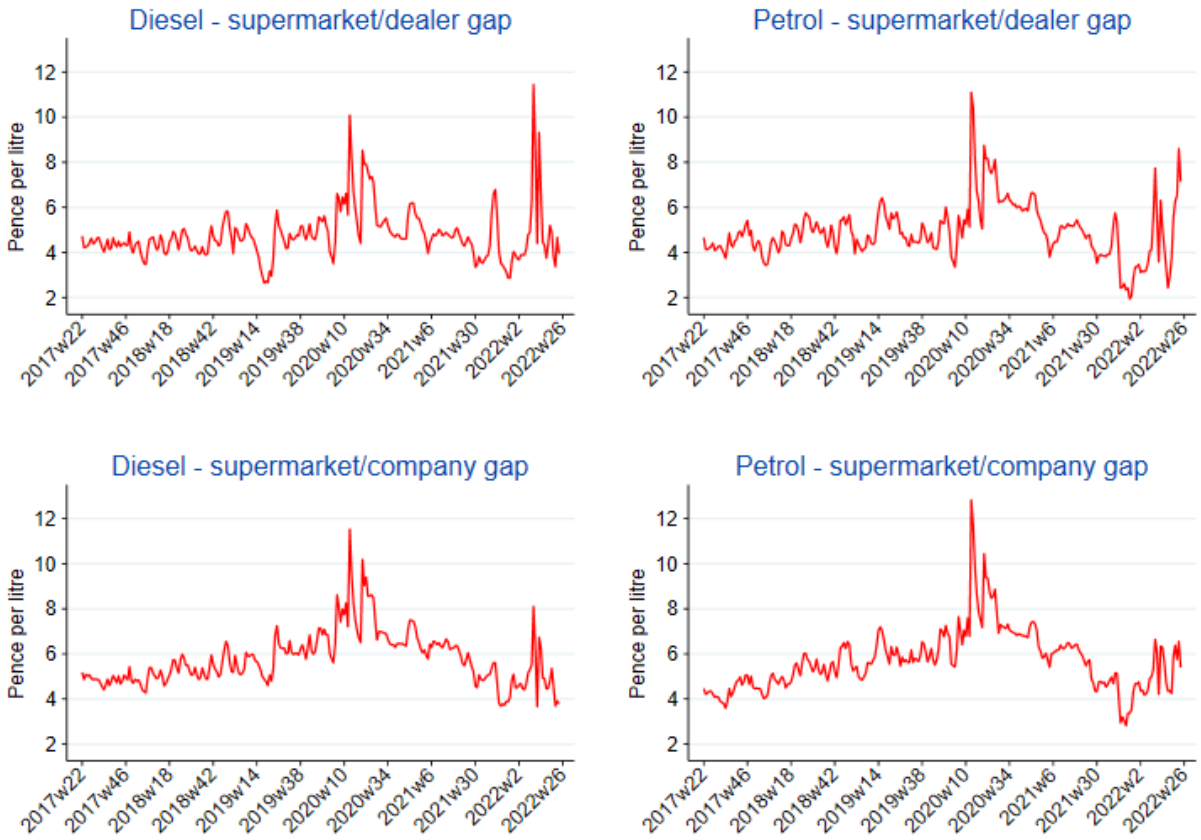
Ownership type	Diesel		Petrol	
	Price gap (ppl)	Price gap (%)	Price gap (ppl)	Price gap (%)
Company	+5.8	4.6	+5.7	4.7
Dealer	+4.8	3.8	+4.9	4.1

8.129 In Figure 8.12 we look at how the price differential between supermarkets other types of sites has changed over time. This shows that the price differential between supermarkets and (i) dealers and (ii) companies has varied over time, with a similar pattern of variation observed for each type of site for a given type of fuel. Generally, the average price differential was fairly static from the start of the dataset in 2017 until 2019, there was then a significant spike in the price differential at the announcement of the first lockdown. The price differential has remained volatile since then, with another significant spike, particular between supermarkets and dealers in early 2022.

8.130 This analysis shows that although the price differential between supermarkets and (i) dealer sites and (ii) company sites is volatile and during some periods has increased to around 10ppl, it has generally been around 4ppl. Currently the price

gap is either around or slightly higher than this, indicating that supermarkets continue to maintain a position of price leadership on average.

Figure 8.12: Average price gap for company and dealers relative to supermarkets, June 2017 - June 2022



Results of econometric analysis on importance of supermarkets on price (Experian data)

8.131 We have used the econometric analysis to control for factors that may be associated with lower supermarket prices, in order to determine whether the price differential between supermarkets and other types of sites may be explained by other factors.

8.132 The econometric analysis estimates the relationship of the presence in the catchment area of at least one supermarket on the price charged by the focal site.[114] The results show areas with at least one supermarket competitor (relative to areas with no supermarket competitors) are 0.44ppl cheaper for diesel and 0.54ppl cheaper for petrol. This result is statistically significant.

[114] The centroid site is the site at the centre of the catchment area.

8.133 The econometric analysis also shows areas with at least one Asda forecourt will be, on average, 0.78ppl cheaper for diesel and 0.76ppl cheaper for petrol, holding all other factors constant. This effect is statistically significant.

8.134 Amongst all supermarkets, the presence of an Asda forecourt in a catchment area is associated with the lowest prices. These results are particularly difficult to interpret because different brands may target areas that are structurally different in terms of the unobservable characteristics that drive price. It is notable that the presence of several brands (eg Shell company, Murco company and Certas Energy company) are associated with statistically significant price premiums. This does not necessarily mean that the presence of these brands causes prices to increase, but more likely that these brands may target types of areas where retailers find it optimal to charge higher prices (eg because customers are less price sensitive).

Entry-exit analysis, and what that shows on causation

8.135 The basic econometric analysis cannot identify the causal effect of various factors on prices because these factors might be correlated with unobserved determinants of prices. To circumvent this issue we have estimated different models that exploit the time dimension of our data. We used this approach to provide alternative estimates of the effect of supermarkets on the prices charged by neighbouring competitors. Instead of testing whether the presence of a particular competitor is associated with lower price at a particular date, we test whether a *change* in the set of competitors is associated with a *change* in prices. If the unobserved determinants of prices do not vary materially over time in areas where entry/exit has occurred, then this methodology can identify the causal impact of entry/exit by a particular type of competitor on prices.

8.136 A limitation of this analysis is that there is a possibility that unobserved determinants *do* vary over time, and that is precisely what triggers the entry/exit of specific competitors. If that is the case, then the results of this strand of analysis are also biased. We cannot exclude this possibility but given that our panel is relatively short we consider this risk to be sufficiently small for the results to be informative.

8.137 This analysis also requires sufficient entry and exit of supermarkets. Our analysis shows there is only a moderate level of entry/exit. This implies that the estimates from these models, while less likely to be biased, are also likely to be imprecisely estimated.

8.138 The results show that, in areas which have experienced entry by a supermarket, where there was no supermarket previously present, prices will be 0.36ppl lower for diesel price, and 0.74ppl lower for petrol price. We note that the price

differential is broadly consistent with that estimated by the basic econometric analysis, which suggest that the results are robust.

8.139 We also attempted to identify the impact of entry (or exit) of a particular brand of supermarket on price. To do this we estimated the impact of adding a competitor to a catchment area where they were not previously present. However, due to data limitations we are not able to restrict this analysis to only areas where there are no supermarkets already present. Therefore, we expect the results of this analysis to show a more muted effect than that set out in paragraph 8.138 where we identify the effect of the entry of the first supermarket to an area. The results show:

(a) areas where an Asda forecourt has entered are on average, 0.23ppl cheaper diesel prices.

(b) areas where a Tesco forecourt has entered are on average, 0.49ppl cheaper petrol prices.

8.140 Therefore, the entry exit analysis shows that the entry of a supermarket into an area will lower petrol and diesel prices.

Asda / Bellis and Morrisons / CD&R transactions

8.141 On 16 June 2021 the CMA accepted undertakings in lieu of reference for the completed acquisition by Bellis Acquisition Company 3 Limited of Asda Group Limited. Additionally on the 9 June 2022, the CMA accepted undertakings in lieu of reference for the completed acquisition of WM Morrison Supermarkets Limited by Clayton, Dubilier & Rice Holdings, LLC. These transactions resulted in the ownership of two of the major supermarkets passing to Parties who also own major networks of dealer PFS stations.

8.142 As set out in paragraph 8.127 to 8.140, we have found that the presence of a supermarket in an area results in lower prices, as part of the merger control process Bellis and CD&R were required to divest a number of PFSs to remedy local competition concerns arising from an increase in concentration.

8.143 As set out in paragraph 8.12, supermarkets have both local and national elements to their pricing strategy, with nationally set rules that around the differentials local PFSs will target to different classes of competitors. We have observed in paragraph 8.32 that supermarket fuel margins have been on an increasing trend since 2017. There could be a number of explanations for this trend, including:

(a) supermarkets could be re-optimising their pricing across the portfolio of products that they offer. This could lead to an increased focus on competitive pricing for groceries and a decreased willingness to use aggressive fuel pricing in an attempt to gain additional footfall. There are two reasons why this might be the case (i) increased competition from Lidl and Aldi who do not

offer fuel and (ii) changes in shopping patterns due to the covid pandemic, which may have increased online shopping.

(b) there could have been a change in competitive conditions in the fuel market, which has lessened competition. We note that the change in market structure in 2021 and 2022, particularly the change in the ownership structures of Asda and Morrisons may have changed their incentives to price aggressively on a national basis.

8.144 We intend to conduct further analysis, including where possible quantitative analysis, to investigate whether their pricing behaviour has changed and as a result their profitability has increased. We would welcome views on this.

9. Responding to the consultation and next steps

Consultation

9.1 We welcome views from interested parties on the analysis and views set out in this initial update report by **6 January 2023**.

Responding to this consultation

9.2 Please email written submissions to RoadFuels@cma.gov.uk by **6 January 2023**.

9.3 Please ensure that all personal data, other than your contact details, is redacted or excised from your response and any documents you submit to us.[115]

9.4 We propose to publish responses to this initial update report, or where appropriate, a summary. Therefore:

(a) please supply a brief summary of the interests of organisations you represent, where appropriate.

(b) please consider whether you are providing any material that you believe to be confidential, and explain why this is the case. **Please provide both a confidential and non-confidential version of your response** where applicable.

9.5 If you are responding as an individual (ie you are not representing a business or other organisation), please indicate whether you wish your response to be attributed to you by name or published anonymously.

9.6 An explanation of how we will use the information provided to us can be found in the Appendix at the end of this section. The Appendix sets out how the CMA may use information provided to it during the course of this market study, including where we may need to refer to information in order to pursue enforcement action against a business in this sector.

Next steps

9.7 We intend to publish a further report on our findings in Spring 2023, on which we will again invite comments. This will be followed by our final report, setting out our

[115] Personal data is defined in the UK General Data Protection Regulation (Article 4(1)) as 'any information relating to an identified or identifiable natural person (data subject); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person'.

conclusions about the market, and any remedial action we feel is necessary, in advance of our statutory deadline of 7 July 2023.

Appendix

How the CMA will use the information you provide us with

1. This annex sets out how we may use information you provide to us during the course of this market study, in line with our legal responsibilities. In particular, please note that we may choose to refer to comments or evidence that you provide in a published report or publish non-confidential information on our website. This may include identifying the contributor.

Why is the CMA asking for information?

2. The CMA is asking for information to carry out a market study into the supply of road fuel in the United Kingdom.

What will the CMA do with the information I provide?

3. Your information will inform our interim and final market study reports. We may publish information you provide and identify you as the contributor of it in those reports, or alongside them on our website. Our final market study report will set out our findings and any proposed remedies to any existing or potential issues we find.

4. We may disclose any information provided by you for the purposes set out in sections 7, 170 and 241 to 243 of the Enterprise Act 2002, where we consider such disclosure to be appropriate. In particular, we may choose to put information provided by you to third parties, such as other government departments and other parties providing information to the CMA, for the purpose of facilitating any further related work.

5. Where appropriate, we may use information you provide to take enforcement action, using our competition or consumer powers, against businesses operating in the markets within the scope of this study. We may also share your information with another enforcement authority or with another regulator for them to consider whether any action is necessary.

6. Unless an exemption applies, we may disclose the fact that you have provided information to us, and the information you have provided, in accordance with our obligations under the Freedom of Information Act 2000.

Will the CMA take steps to protect my information?

7. We may only publish or share with others information that you provide to us in specific circumstances set out in legislation (principally Part 9 of the Enterprise Act 2002). In particular, prior to publication or any such disclosure, we must have regard to (among other considerations) the need for excluding,

so far as is practicable: (a) any information relating to the private affairs of an individual which might significantly harm the individual's interests; or (b) any commercial information which, if published or shared, we think might significantly harm the legitimate business interests of the undertaking to which it relates.

8. We will redact, summarise or aggregate information in published reports where this is appropriate to ensure transparency whilst protecting legitimate consumer or business interests.

How will the CMA handle any personal data I provide?

9. Any personal data you provide to us will be handled in accordance with our obligations under the UK General Data Protection Regulation and the Data Protection Act 2018. Our personal information charter set out the standards you can expect from us when we collect, use or share personal data and provides details of your rights in relation to that personal data and how to contact us.

What should I do if you have concerns about how the CMA will use any information I provide?

10. You should make clear to us any information that you consider to be confidential when you provide it to us and set out why you consider it to be confidential.

11. If we want to include any sensitive commercial or personal information in a document that will be published we will, save in exceptional circumstances, contact you prior to publication to give you an opportunity to tell us about any concerns you may have regarding that publication.

Where can I find further information?

12. Further details of the CMA's approach can be found in Transparency and Disclosure: Statement of the CMA's Policy and Approach (CMA6).