

# GROCERIES MARKET

## Working paper on coordination

### Overview

1. Coordination—or ‘tacit collusion’—describes a situation where firms who operate in the same markets over time understand that if they refrain from competing they can increase both total market profits and individual firm profits. The outcome of any type of coordination is likely to be the same as any scenario when competition is not functioning effectively: higher prices, lower volumes, poorer quality, less innovation.
2. We have received very few submissions explicitly raising the issue of coordination among grocery retailers.<sup>1</sup> However, in 2003, the Competition Commission (CC) recommended that Asda, Sainsbury’s and Tesco be prohibited from acquiring Safeway partly because ‘*a number of conditions existing in the one-stop grocery market which are particularly conducive to such coordinated behaviour would be intensified.*’<sup>2</sup>
3. This paper assesses whether coordination is occurring between the four largest retailers at a national level. The focus is on the four largest retailers because coordination is most easily sustained between a small number of firms that account for a large share of sales.

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<sup>1</sup>Professor Dobson’s paper—*Micro-marketing and Discriminatory Practices in UK Grocery Retailing*, Professor Paul Dobson, November 2006—which was submitted on behalf of the ACS, implies that collusion might be possible among grocery retailers. Pareto Retail submitted by email on 5 February 2007 that concentration levels among grocery retailers are approaching levels that make coordination a concern.

<sup>2</sup>*Safeway plc and Asda Group Limited (owned by Wal-Mart Stores Inc); Wm Morrison Supermarkets PLC; J Sainsbury plc; and Tesco plc: a report on the mergers in contemplation*, CC, 2003, TSO Cm 5950. The CC (2003) considered that the following features of the groceries markets were conducive to coordinated effects and that the merger of either Tesco, Asda, Sainsbury (but not Morrisons) with Safeway would intensify these effects and make collusion more likely: high concentration; price transparency; stable demand, costs and innovation; ability to respond to price changes rapidly; financial commitments to the market; and high entry barriers. The CC only concluded on the effects of the merger on the structure of the market and how this might change incentives for collusion. It did not conclude on that tacit collusion was taking place at the time.

4. This paper focuses on two scenarios which may cause concern:
  - (a) grocery retailers coordinating by refraining from competing on all prices or on prices of particular items such as known-value items (KVIs); and
  - (b) grocery retailers coordinating by refraining from competing directly with each other in local areas (ie market sharing). This might involve only bidding for store sites in particular areas of the UK.
  
5. The Safeway Inquiry considered that national concentration, transparent pricing, commitment to the market and stable demand are features present in grocery retail markets that might increase the opportunity for coordination. These are all features listed in the *Market Investigation References: Competition Commission Guidelines, CC3* as facilitating coordinated effects<sup>3</sup>. This paper considers these structural features of groceries markets to the extent that they are relevant today. As well as considering the structural features of groceries markets, this paper considers whether there is direct evidence of coordinated effects.
  
6. This paper finds that some of structural features which are conducive to coordinated effects are present in grocery markets. However, the evidence assessed in this paper does not support the hypothesis of coordination on prices. Further, our current analysis of the parties' data provides no indication that they are coordinating on location. The evidence shows that:
  - (a) grocery retail chains are dissimilar both in terms of size and market share. The relative market shares of the four largest retailers are becoming more asymmetric over time, and it appears that Tesco has increased its market share by around 6 per cent in the past three years, largely at the expense of Morrisons;

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<sup>3</sup>[www.competition-commission.org.uk/rep\\_pub/rules\\_and\\_guide/pdf/15073compcommguidance3final.pdf](http://www.competition-commission.org.uk/rep_pub/rules_and_guide/pdf/15073compcommguidance3final.pdf), pages 30–31.

(b) there are several smaller retailers who have no incentives to adhere to the coordinated strategy but appear to impose some competitive constraint on the four largest retailers;

(c) there is a long-term trend in falling food prices; and

(d) retailers do not appear to be clustering in different Local Authority areas.

7. This paper is structured as follows. The next section (paragraphs 8 to 18) describes the characteristics of the groceries markets which would increase the incentives for firms to coordinate. Paragraphs 19 to 36 then consider whether there is any evidence of coordinated effects. Paragraph 37 concludes. A simple example of how coordination might work in practice is set out in the Annex.

### **Market characteristics conducive to coordination**

8. Coordination only arises under a specific set of circumstances. These circumstances must ensure that there is no incentive for any one firm to 'deviate' from a mutually beneficial conduct—the coordinated strategy. For example, for price coordination to be sustained, it is necessary that no individual firm can increase its profits from cutting prices. That is, the gain from increased volume sales in the short run is offset by the loss from increased rivalry (and thus lower market prices) in the long run. A simple example of how coordination might work in practice is given in the Annex.

9. According to the CC guidelines, the conditions facilitating coordinated effects are as follows:

(a) the market must be sufficiently concentrated for firms to be aware of the behaviour of their competitors and for deviation from the prevailing behaviour to be readily apparent (for example, through price or other market transparency);

(b) it must be costly for firms to deviate from the prevailing behaviour, such that it is against their interests so to deviate; and

(c) competitive constraints in the affected market(s) must be relatively weak, so that the actions of non-coordinating firms, potential competitors and customers do not jeopardise the expected outcome of coordination (for example, low barriers to entry, a strong competitive fringe and countervailing buyer power might all serve to disrupt coordination).

10. Several features of the grocery market may be considered to be conducive to coordinated behaviour. We examine some of these theories next.

**(a) *Transparent and adjustable prices***

11. In an industry where competitors repeatedly interact, price transparency allows rivals to establish key focal prices on which to coordinate, and further to detect deviation by any firm.<sup>4</sup> Grocery prices are transparent and—in particular on key items—tend to be publicly available, for example *The Grocer* publishes weekly price comparisons (Grocer 33), and there are several price comparison websites (eg [www.tesco.com/pricecheck](http://www.tesco.com/pricecheck)). Retailers tend to monitor each others' prices across a wide range of products. National pricing strategies facilitate this monitoring process, but local promotional activity may go undetected. In principle, retailers could coordinate by monitoring demand, although in practice this may be difficult as it would require the ability to distinguish demand fluctuations that are generated by price changes (including deviations from a coordinated outcome) from those that are independent from price changes (deriving for example by changes in income levels or tastes).

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<sup>4</sup>Professor Dobson's paper—*Micro-marketing and Discriminatory Practices in UK Grocery Retailing*, Professor Paul Dobson, November 2006—which was submitted on behalf of the ACS, argues that national pricing may make collusion easier. Professor Dobson also indicates that price awareness amongst consumers might make price a key focus for competitive rivalry rather than non-price features of the retail offer.

**(b) National concentration**

12. Typically, a more concentrated market would be expected to enhance the incentives for coordination. If there are fewer firms in the market, each firm has a higher share of the joint market profits when coordinating.
  
13. The four largest retailers together account for 75 per cent of grocery sales through grocery retail chains. These chains operate in many localities across the UK, but they tend to set prices nationally. They each have a share of national grocery sales in excess of 10 per cent. The next largest competitor is Somerfield, with 5.6 per cent of sales.

**(c) Long-term financial commitment**

14. If firms have a long-term commitment to the market, coordination is more likely to occur. When competitors repeatedly interact, and when they recognise their long-term interdependence, the emergence of mutual interest in refraining from competing is more likely. In 2003, the CC considered that the continued investment in sites for new stores, product innovation and service—alongside the fact that the four largest retailers were all bidding for Safeway—demonstrated long-term financial commitment to the sector.<sup>5</sup>

**(d) Steady demand and frequent sales**

15. If consumer demand for a product (in this case the retail offer) is volatile, coordination is less likely. This may happen for two reasons. First, uncertainty over future demand conditions makes future profits that derive from adhering to a coordinated strategy less reliable than the higher profits that could be earned by undercutting rivals' prices. This creates an incentive for firms to 'cheat' on the coordinated strategy.

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<sup>5</sup>Paragraph 2.152.

Second, if prices cannot be monitored fully, demand may be used to detect deviations from a collusive price. If demand is volatile and difficult to predict, however, this may not be possible. Overall, demand for groceries, as a necessary purchase for consumers, is fairly stable. Grocery revenues have been increasing in real terms by approximately 3 per cent per year.<sup>6</sup>

16. The frequency of demand for a product also affects the sustainability of collusion. If a product is purchased infrequently, deviations from the coordinated price will go unpunished for a longer period of time. Grocery purchases tend to be frequent. TNS data shows that 42 per cent of households shop for groceries at least three times a week.

### **Summary**

17. Each of the above features of grocery retail markets increases the likelihood of coordination between the four largest retailers. However, these features in themselves are not sufficient to guarantee that coordination will take place, as there may exist other features of the market that destabilise collusion. For example, groceries markets exhibit other characteristics that tend to reduce the likelihood of collusion: asymmetry among retailers, a number of strong fringe competitors that might not adhere to the coordinated conduct (eg Somerfield) and significant levels of innovation.
18. As such, assessing whether the groceries markets exhibit certain characteristics conducive to coordination is necessary, but not sufficient, to evaluate whether coordinated effects are occurring in practice. We therefore consider below whether

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<sup>6</sup>Verdict, *Neighbourhood retailing*, 2006; *Safeway plc and Asda Group Limited (owned by Wal-Mart Stores Inc)*; *Wm Morrison Supermarkets PLC*; *J Sainsbury plc*; and *Tesco plc: a report on the mergers in contemplation*, CC, 2003, TSO Cm 5950.

there is any direct evidence of coordination between the four largest grocery retail chains.

### **Evidence of coordination**

19. If grocery retailers are coordinating on price, we would expect to see:

(a) retailers charging similar prices for comparable products;

(b) low variation in prices over time; and

(c) market shares of firms being stable over time.

The evidence below shows that food prices are falling in real terms and change frequently relative to the Retail Price Index (RPI), relative prices of the four largest retailers vary over time, and that grocery revenue shares are becoming increasingly asymmetric.

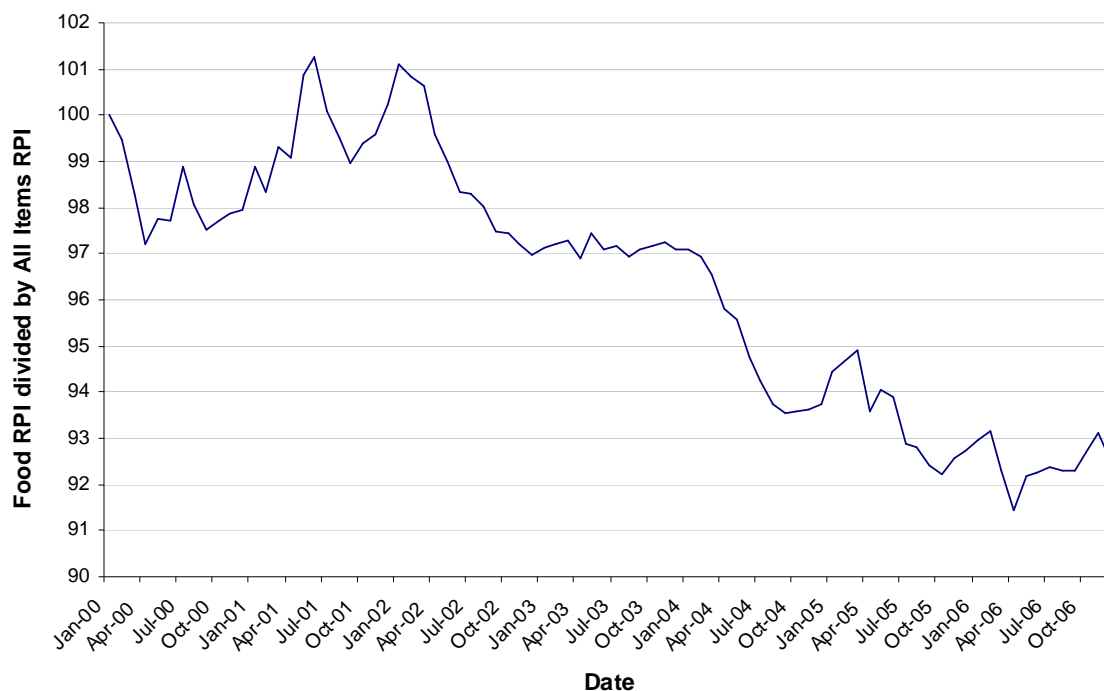
20. If grocery retailers are coordinating by sharing the market geographically, we might see retailers clustering in certain locations and a lack of direct local competition. The evidence we have seen to date does not suggest that the four largest retailers refrain from operating in the same areas, although this observation is based on data across quite broad areas (Local Authorities).

#### ***(a) Real food prices are volatile and falling***

21. If retailers are coordinating, we might expect little variation in (real) food prices. However, since January 2000, real prices for food have declined by 7.5 per cent. The trend in real food prices between January 2000 and December 2006 is shown in Figure 1 (indexed from January 2000).

FIGURE 1

**Trend in real food prices since 2000**



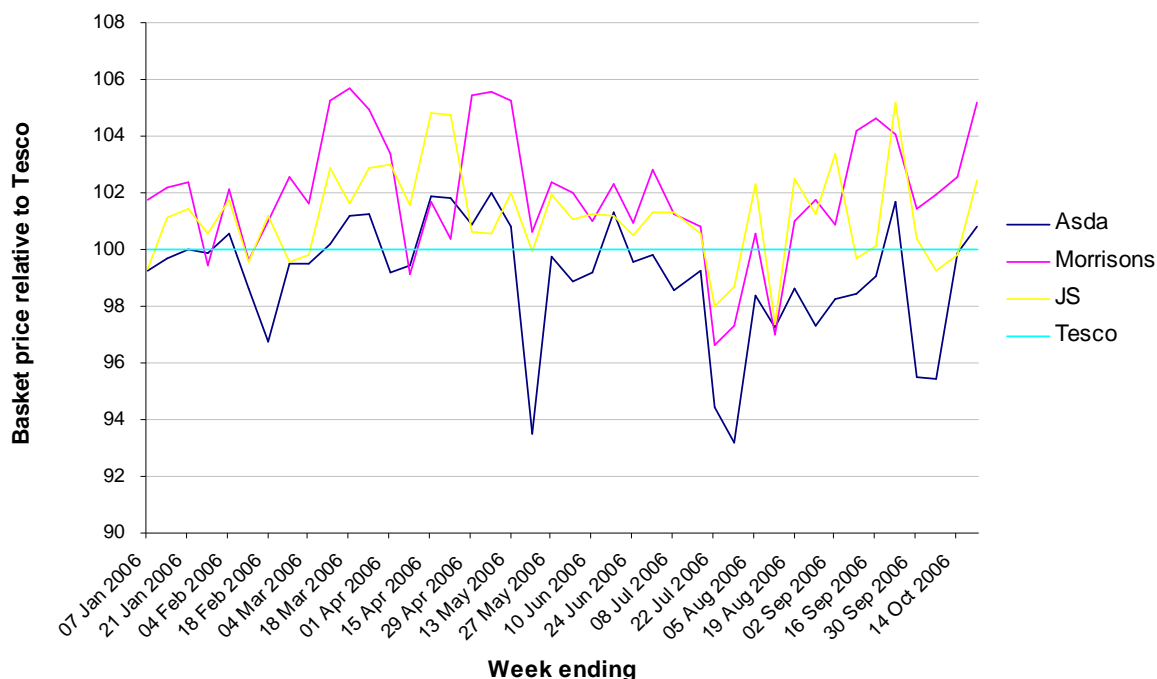
Source: CC analysis of ONS data.

22. Prices have been quite volatile over the period shown in Figure 1. Prices fell most dramatically in 2002, by approximately 3.3 per cent. In 2006, food prices fell by 0.25 per cent over the year, following a sharp drop in prices at the beginning of the year then an increase in prices between April and October.<sup>7</sup>
23. The trend in food prices suggests that if any price coordination is taking place among grocery retailers, it is either on non-food items or on KVIs. This is unsurprising, given the possible difficulties in coordinating on such a wide range of products.
24. If coordination is taking place on a subset of products, for example on KVIs, we might expect that similar prices are being charged by retailers on such items, or

alternatively that there is some stability in the relative prices charged for such items. Figure 2 shows the total value of a basket of Grocer 33 products supplied by Asda, Morrisons and Sainsbury's, relative to Tesco.

FIGURE 2

**Value of Grocer 33 baskets relative to Tesco**



Source: CC analysis of Grocer 33 data provided by Asda.

25. The average basket value for the Grocer 33 over the period 7 January 2006 to 21 October 2006 was £42.73. As shown in Figure 2, deviations from Tesco are large in some periods and small in others—this volatility does not indicate that the four largest retailers are coordinating prices on the items in this basket. (The prices appear to move together over time but this is most likely because the composition of the basket changes slightly week on week).

<sup>7</sup>The Grocer magazine estimates food price inflation of 5.1 per cent for the past 12 months (*The Grocer*, 13 January 2007, p7). This does not reconcile with the above ONS data.

26. Further, none of the retailers were consistently more or less expensive than the others, although Morrisons was the most expensive basket in 27 out of 42 weeks and Asda was the least expensive basket in 26 weeks.
27. In summary, the analysis of all food prices, and of the Grocer 33 prices, does not suggest coordination between the four largest retailers.

***(b) Shares of supply are not similar and are changing over time***

28. The trend in concentration and in patterns of shares of supply over time can be informative about coordination. First, coordination is more likely to be sustained if firms have similar market shares. Second, if firms are coordinating, either on price or by site sharing, we would expect their relative shares of supply to be stable over time. On the other hand, if firms are competing, we might expect to see changes in their shares that are negatively correlated if they are winning business from each other.
29. Table 1 shows the estimated shares of supply of the national grocery retail chains for 2006.

**TABLE 1** Estimated shares and size of national grocery retailers, 2006

	<i>per cent share</i>	<i>Number of stores</i>
Tesco	30.4	1,898
Asda	16.5	305
Sainsbury's	15.9	752
Morrisons	10.3	373
Somerfield	5.6	1,424
Co-ops	4.7	
Waitrose	3.7	173
Iceland	1.6	695
Lidl	2.0	
Aldi	2.3	
Netto	0.7	

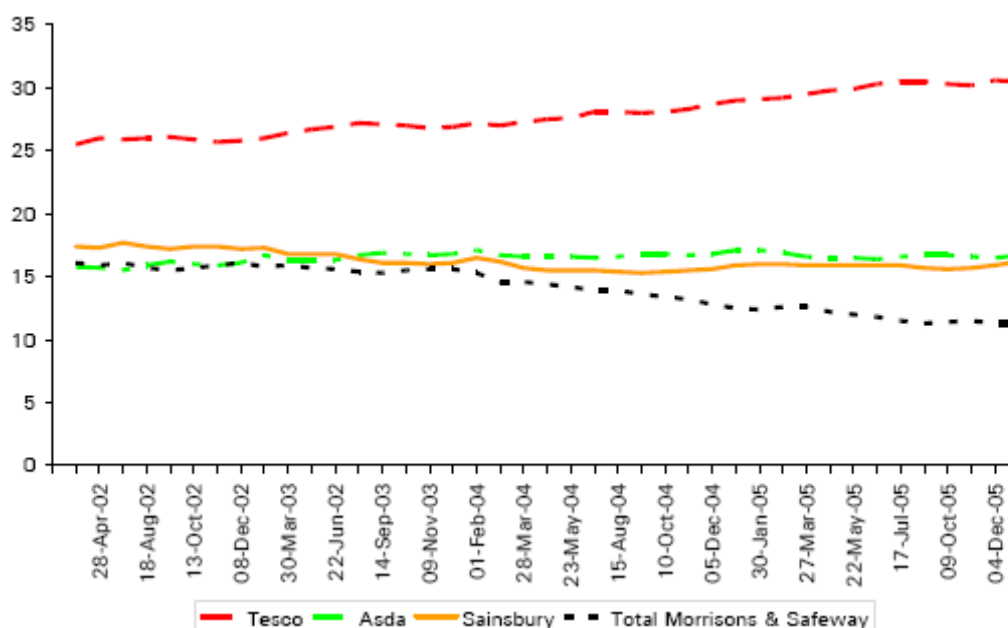
*Source:* IGD Grocery Retailing 2006, quoting TNS total till roll data, for 52 weeks ending February of the relevant year.

*Note:* National sales shares excludes sales at specialist grocery retailers and other grocery outlets such as butchers, Boots, chemists and Marks & Spencer. Store numbers include both supermarkets and convenience stores.

30. This table shows that, whilst the four largest retailers account for the majority of grocery sales, they are not very similar in terms of size. Tesco has a 30 per cent share of the market and the largest number of stores. Asda has a 16.5 per cent share of the market, but only 305 stores. The lack of symmetry among the four largest retailers in terms of market share and number of stores does not facilitate coordination.
31. Figure 3 shows the estimated shares of grocery revenues of each of the four largest retailers between 2002 and 2005.

FIGURE 3

**Market shares by value of the four largest grocery retailers**



Source: *The Grocery Market, the Office of Fair Trading (OFT's) reasons for making a reference to the Competition Commission*, May 2006. OFT analysis based on TNS till roll data.

32. Figure 3 shows that Tesco increased its share of grocery revenues from about 25 per cent to over 30 per cent. This appears to have been largely at the expense of Morrisons/Safeway. Further, while Asda and Sainsbury's have had fairly stable market shares over the period, Asda overtook Sainsbury's as the second largest

retailer mid-2002. This evidence does not suggest that the retailers were coordinating over the period.

33. National concentration levels do not appear to have changed significantly since the Safeway merger in 2003. At that time, the CC estimated the HHI<sup>8</sup> for stores over 1,400 square metres to be 2,290 if Morrisons purchased Safeway, but over 2,600 if any of the other three bidders purchased it. The HHI calculated for the retailers listed in Table 1 is 1,862. However, this includes stores below 1,400 square metres in size and fascia that weren't considered to compete with Safeway (Waitrose and the Limited Assortment Discounters (LADS)). If calculated across the same set of competitors, the HHI is 2,230, suggesting that there has been little change in concentration since 2003.<sup>9</sup> As Tesco has increased its market share, this implies that there has been an offsetting decrease in concentration among other smaller retailers.

***(c) The four largest retailers have sites in the same localities***

34. One way in which the four largest retailers could coordinate their activities would be 'market-sharing' whereby the retailers tacitly agree to serve different areas of the country.
35. Our current data analysis indicates that, of 434 Local Authority areas, there are 11 areas where none of the four largest retailers are present and 59 areas where only one of them is present.<sup>10</sup> In the remaining 360 areas, two or more of these retailers have stores. Table 1 shows the number of areas in which each of the four largest

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<sup>8</sup>The Hirschmann-Herfindahl Index (HHI) is a measure of concentration within a pre-defined market calculated as the sum of squared market shares. The Office of Fair Trading typically considers markets with HHI values of more than 1,000 to be concentrated and more than 1,800 to be highly concentrated.

<sup>9</sup>These figures include stores under 130 square metres (1,400 square feet) in size in the market across which HHI is calculated. Tesco, Sainsbury's, Somerfield and Co-op all own a large number of mid-range and/or convenience stores, so it is not clear whether the inclusion of these stores increases or decreases the HHI.

retailers is present, and the number of times each retailer comes up against each other in a Local Authority area.

**TABLE 1** Number of times retailers meet in different Local Authority areas

	Tesco	Asda	Sainsbury's	Morrisons
Tesco				
Asda				
Sainsbury's				
Morrisons				
<b>Total areas present</b>				

Source: CACI analysis of data from grocery retailers and retail locations.

36. This data shows that the four largest retailers are often located in the same Local Authority area. This does not suggest that retailers are carving up the market geographically, at least not in areas any wider than Local Authority areas. Further analysis will be carried out in the period up to the Provisional Findings to assess where retailers operate in more narrowly-defined areas.

## Conclusion

37. There are a number of features present in grocery markets which might increase the incentives for coordination: price transparency; concentration; steady demand; frequent sales and financial commitment. There are also features of the market which are likely to disrupt a coordinated strategy: asymmetry of firms, fringe competitors and innovation. Overall, we have seen no evidence that indicates that retailers are coordinating on price or location, and the changes in market share and volatility of prices are consistent with competition. Further analysis of rivalry between

<sup>10</sup>CACI analysis of data from grocery retailers and retail locations. A fascia is present in an area if it has a store over 279 square metres (3,000 square feet) in that area.

the four largest retailers in more narrowly-defined local areas will be conducted in the period up to the Provisional Findings.

### Example of tacit collusion

- A1. The following example demonstrates why firms might coordinate rather than compete.
- A2. Three firms, A, B and C, all supply a product which has a unit cost of £5. Each firm sells 100 units of the product each year at a price of £10 per unit, making a profit of £500. At the beginning of the year, each firm chooses prices and volumes. Firm A knows that if it reduces its price to £9, it can sell all 300 units demanded and earn a profit of £1,200.<sup>11</sup> However, it also knows that in the following year, a collusive strategy is no longer sustainable, because all firms will price at the competitive level (£5) and make zero profits. Could collusion be sustained in the long run? The answer is 'yes' if the present value of future profits under a collusive strategy (eg £500 per year discounted back to the present day) is, for each firm, greater than the profits that would be earned by deviating from the collusive price (eg £1,200 for one year).

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<sup>11</sup>Assuming for simplicity that market demand doesn't change.