

ROLLING STOCK LEASING MARKET INVESTIGATION

Competitive analysis working paper

Summary

1. In this working paper, we put forward the following views:

(a) *Pricing*: Our initial analysis shows that even if ROSCOs adopt flat rental pricing as a starting point for lease price negotiations, rentals for different leases have in some cases increased or decreased in nominal terms from one lease to the next to different degrees. Compared with a previous comparable lease, capital rentals have decreased in 40 per cent of new leases, increased in around one-third of new leases and remained unchanged in around one-quarter of new leases. We will examine in further detail after publication of Emerging Thinking what factors explain these changes—considering, for example, competitive pressures and recovery of additional capital expenditure.

(b) *Switching*: In our analysis we have referred to changing the rolling stock used on a particular route as a ‘switch’ of rolling stock. A switch must involve the movement of rolling stock to a different route for use by a different franchisee; it does not include franchise remappings or a change in franchisee without movement of rolling stock. We identified 83 instances between privatization and 2010 where switching of rolling stock has occurred/will occur. This amounted to 2,051 vehicles over a period of 14 years:

(i) When new vehicles are introduced on a franchise they may trigger the displacement of incumbent rolling stock to another franchise. We term this displacement a ‘first cascade’. Subsequent cascades may also occur if the cascaded used rolling stock displaces other used rolling stock on other franchises (‘second cascades’, ‘third cascades’, etc). Of the 83 instances of switching, 57 were cascades. Most cascades have been only one iteration

long. In other words only a first cascade occurs with no subsequent cascades:

- (ii) Most switching has taken place since 2004 as the number of franchise re-lets has increased. Until 2004 switching in any one year rarely exceeded 1 per cent of total capacity. Since 2004, switching reached nearly 4 per cent of capacity in 2004 and nearly 6 per cent in 2007.¹
 - (iii) Vehicles from only 23 classes of rolling stock (out of around 90 classes that have been used since privatization) have been switched since privatization. Many of these instances of switching relate to a handful of classes, notably Classes 150, 158, HSTs and Mk 3 coaches. This suggests that there is a limited number of rolling stock classes that can be moved around the rail network with relative ease.
 - (iv) 15 per cent of vehicles switched involved switching between rolling stock owned by the same ROSCO (for example, from Angel rolling stock to Angel rolling stock), and 8 per cent of vehicles have been moved to meet increases in demand on other franchises. The remaining 77 per cent of vehicles switched (1,579 vehicles) have involved a switch from one ROSCO to another.
 - (iv) We will consider further (a) the role of the DfT in relation to cascades, (b) threats of switching, and (c) the impact of switching on prices.
- (c) *Switching costs:* In terms of switching costs, TOCs indicated that they were only likely to switch to rolling stock that was already Route Accepted (or required straightforward Route Acceptance). In addition, TOCs are unlikely to want to invest significant money in staff training. There is also the added risk of taking on rolling stock which (a) a TOC has not used before and (b) has not been used on

¹We are still investigating whether some instances of switching actually meet our definition of a switch of rolling stock rather than just a franchise remapping, hence the figures may in practice be lower than those currently stated.

the franchise. When coupled with a lack of switching opportunities, these appear to be the main factors that have prevented switching.

Introduction

2. In this working paper we consider the competitive constraints faced by the ROSCOs in terms of intra-market rivalry—assessing the extent to which the ROSCOs compete against one another. We have considered other factors affecting competitive constraints (for example, entry, countervailing buyer power and price transparency) in other working papers.
3. The analysis in this paper considers both substitutability of rolling stock (and hence market definition) and competition between the ROSCOs. We will distinguish between substitutability of rolling stock and competition between ROSCOs where appropriate.
4. At this stage of our inquiry we have assessed the competitive dynamics between ROSCOs by examining:
 - (a) the changes in capital rentals for rolling stock from one lease to the next. Capital rentals are set for each lease of rolling stock. When the lease term expires (which usually coincides with the termination of the franchise term), the ROSCO will seek to enter into a new lease with a TOC;²
 - (b) the extent that TOCs switch between classes of rolling stock;
 - (c) the extent that TOCs switch between ROSCOs; and
 - (d) the switching costs faced by a TOC.

²This may be the same or a different TOC as the previous lease and it may be the same or a different franchise.

Lease rentals

5. We set out in the Emerging Thinking document what we expect should happen to rolling stock capital rentals in a competitive market. We stated that prices should be determined by the interaction of supply and demand and that outcomes will be influenced by the extent of spare capacity in each market. We also discussed the importance of the ROSCOs' approach to determining capital rental prices, whereby in some cases the previous lease price would be a starting point for the process of deciding the price to be offered in negotiations with the TOCs bidding for the franchise. However other factors such as availability of alternative rolling stock, indifference pricing and commercial issues could also influence the starting point for negotiations.

6. In the remainder of this section, we begin to examine the extent to which capital rentals have changed from one lease to the next for each fleet of rolling stock. This examination will inform our consideration of (a) and (b) above.

7. Both the ROSCOs and the DfT made a number of submissions in relation to lease price changes.³ We summarize these views, then present our proposed approach and initial high-level analysis.⁴

The ROSCOs' evidence

8. All three ROSCOs submitted that where prices had increased from one lease to the next this was to reflect additional capital expenditure on rolling stock. Additional capital expenditure is expenditure by the ROSCO on refurbishments or modifications to the rolling stock (for example, the fitment of new engines, refitting of interiors, or

³The ORR did not draw any inferences from the arguments on price trends that were submitted to it.

⁴Price comparisons between classes of rolling stock are difficult because of the heterogeneous nature of the products. No one type of rolling stock has characteristics identical to another type. Angel submitted that meaningful comparisons between lease prices for different MOLA and non-MOLA fleets are complicated due to difference in fleet sizes, lease terms, unit formations, fleet specification and (on MOLA stock) levels of investment in enhancements. It considered that only a handful of fleets could

installation of air conditioning or CCTV). This expenditure may be at the request of the TOC, initiated by the ROSCO or caused by mandatory modification requirements. In some cases, such expenditure will increase the asset's useful economic life and in others it will simply ensure the existing useful economic life is realized.

9. Angel noted that where additional capital expenditure was not rentalized this was equivalent to a rental reduction. HSBC also stated that price was not the only aspect of competition, and that competition had led to substantial quality improvements to rolling stock.
10. Both Angel and Porterbrook submitted high-level quantitative analysis of price changed from one lease to the next.

Angel

11. To assess price changes, Angel conducted an assessment of 52 leases agreed for used rolling stock between 31 March 2002 and 30 June 2006. Table 1 shows Angel's analysis.

TABLE 1 **Angel's analysis of changes in lease rentals from one lease to the next, March 2002 to June 2006**

<i>Price change</i>	<i>Number of cases</i>	<i>Angel's comments</i>
Reduction	38	Angel 'reacted to competitive pressure by reducing its price, making investment for no additional rental or forgoing rental increases on short-term leased stock'.
No change	2	Price and rolling stock quality were unchanged (one due to a Section 54 undertaking).
Increase without investment	2	Prices increased without offsetting investment or a change in service offering—'in both cases this was better to reflect the true market value for fleets of these types'.
Increase with investment	10	In 8 of these cases the price increase was due to additional investment and in 2 it was due to an additional payment to the fleet manufacturer.
Total	52	

Source: Angel submission to the CC.

reasonably be compared—Class 442s and 444s on South West Trains, Class 158s and 175s on Wales and Borders, and Class 317s and 360s on Greater Anglia.

12. Angel concluded that, based on this analysis, there was 'significant competitive pressure' constraining pricing decisions.

Porterbrook

13. To take into account changes in the quality of rolling stock from one lease to the next, Porterbrook considered 'effective rentals', which are 'rentals after deducting that element of the current capital lease rental that has been added to recover post-privatisation expenditure on modifications, design or endemic fault cover, refurbishment, etc'. In aggregate, Porterbrook found that effective rentals from one lease to the next had on average fallen by 13 per cent in nominal terms since privatization. For leases associated with new franchises only,⁵ effective rentals had fallen in aggregate by 17 per cent in nominal terms.
14. Porterbrook noted that the fall it identified in effective rentals had taken place despite the fact that MOLA stock had become more attractive relative to new rolling stock due to:
 - (a) recent increases in prices charged by train manufacturers for new rolling stock;
 - (b) increases in the relative cost of operating new stock (eg higher track access charges and fuel costs because new stock is heavier); and
 - (c) other characteristics (for example, lower seating capacity in new rolling stock).

The DfT's evidence

15. The DfT submitted that lease prices had generally stayed the same or increased from one lease to the next. Using data for 13 franchises that have been let since 2004,⁶ the DfT submitted that 'on average, the MOLA capital rentals increased by around

⁵This excludes leases associated with franchise extensions or with movement of rolling stock during a franchise.

⁶ScotRail, Thameslink Greater Northern, Great Western Link, South West, Northern, Greater Western, First Capital Connect, Integrated Kent, Greater Anglia, Intercity East Coast, Central, Wales and Borders, Transpennine Express. Note that some of these franchises are amalgamations of previous franchises or contain different routes to previous franchises.

[redacted] per cent in cash terms'. By ROSCO, these figures were increases of [redacted] per cent for Angel, [redacted] per cent for Porterbrook and [redacted] per cent for HSBC. The DfT submitted that, even if prices were found to have fallen, this did not mean that they were now at a competitive level.

16. The DfT noted the 'marked contrast in ROSCO pricing in the very few cases where there is real competition in respect of a fleet—for example, the marked lease cost reduction of [redacted] per cent by Porterbrook in respect of the [redacted] fleet and [redacted] per cent by HSBC in respect of the [redacted] fleet'.
17. Taking into account the ROSCOs' views on additional capital expenditure, the DfT considered that four types of capital expenditure might occur during the life of the rolling stock, of which it considered that (b) below was 'the only legitimate reason for increasing (or not decreasing) the capital rental':
 - (a) Expenditure on heavy maintenance⁷—the DfT stated that this should be funded via non-capital rentals.
 - (b) Bidder-initiated enhancements to rolling stock—the DfT submitted that if bidders wished to improve the specification of vehicles, then it would appear reasonable for the cost of this to be rentalized through an increase in the capital lease payments to reflect the life of the modification.
 - (c) Work required to maintain the attractiveness of rolling stock throughout its planned useful economic life—the DfT submitted that ROSCOs already included a risk allowance for this type of expenditure in capital lease rates.
 - (d) Expenditure which extends the useful economic life of the asset—the DfT argued that a return on this type of investment should be earned by receiving capital lease payments over the longer asset life rather than through increased monthly lease rentals.

Our approach to price changes and additional capital expenditure

18. In assessing price changes from one lease to the next, we consider that aggregate figures (as used by the DfT and Porterbrook) provide a picture across fleets, but do not indicate whether the lease prices of individual fleets have increased or decreased from one lease to the next. Variations in price changes may have occurred because of the different competitive pressures placed on different fleets at different points in time. We will therefore undertake price analysis by examining changes in price from one lease to the next for each fleet of rolling stock.
19. Additional capital expenditure is an essential part of the consideration of competitive pressures when negotiating a new lease on used rolling stock. We consider that it is important to understand the motives behind such expenditure. We will consider whether there are different categories of capital expenditure and how each identified category of investment should be treated within the ROSCOs' pricing models.⁸ For example, we will need to be careful that in examining changes in price attributable to capital expenditure we are only considering that expenditure which falls outside the normal maintenance examinations (ie not expenditure type (a) in paragraph 17 above). We will therefore be assessing whether additional capital expenditure falls into categories (a) to (d), or any other category we consider relevant.
20. In assessing price changes from one lease to the next we will therefore examine:
- (a) For each new lease of rolling stock, how has the capital rental changed from the previous lease of that rolling stock?
 - (b) Has rolling stock had any additional capital expenditure made on it and does this fall under any of the categories that we identify?

⁷Heavy maintenance is explained in the Maintenance issues working paper.

⁸For example, we note that (d) in the DfT's categories of additional capital expenditure might lead to higher monthly capital rentals, albeit over a longer period of time.

(c) Taking (a) and (b) together, how have capital and non-capital rentals changed from one lease to the next?⁹

(d) What factors (other than additional capital expenditure) have caused changes in lease rentals?

21. At this stage of our inquiry we have considered question (a), the high-level findings of which we present below.

Our initial analysis

22. We asked the ROSCOs to submit data on each new lease that has been agreed since privatization following a franchise re-let¹⁰ or a franchise extension; and, where possible, to submit comparable data for the previous lease for each fleet of rolling stock. There have been 19 franchise re-lets¹¹ and 15 franchise extensions since privatization.¹² These franchise agreements have led to a total of 257 new leases being agreed, covering 14,882 vehicles. 42 of these leases, covering 2,279 vehicles, related to either:

(a) new rolling stock which had not previously been leased; or

(b) used rolling stock for which the previous lease price was not available or was not comparable.¹³

23. In each case, the absence of previous lease price data meant that we were unable to calculate a price change for that fleet from one lease to the next.

⁹We will need to consider not only whether capital rentals have changed, but also whether non-capital rentals have changed to offset a capital rental change.

¹⁰By franchise re-let we mean the situation where a new franchise has been let and new leases agreed. In some cases this has involved amalgamations of other franchises or changes in the routes included in the franchise.

¹¹This includes Merseyrail, which accounts for one franchise re-let and two leases.

¹²In some cases, fleets have been part of franchise re-lets or extensions on more than one occasion, hence the total number of vehicles that have had a new lease agreed exceeds the total capacity on the network of around 11,600 vehicles.

¹³For example, where there was no previous lease that matched up with the same amount of rolling stock this may have been because details were unavailable or because the rolling stock in one lease was split up and leased under different leases.

24. Excluding these data points left a sample of 215 new leases covering 12,603 vehicles. We assessed the price changes from one lease to the next for each of these leases. Table 2 shows the results.

TABLE 2 **Nominal capital rental changes from one lease to the next**

<i>Rental change</i>	<i>Number of vehicles</i>	<i>%</i>	<i>Number of leases</i>	<i>%</i>
No change	4,338	34	56	26
Decrease	3,403	27	85	40
Increase	4,862	39	74	34
Total	12,603	100	215	100

Source: CC analysis.

25. Table 2 shows that even if ROSCOs adopt the previous lease price as a starting point for lease price negotiations, capital rentals for different leases have in some cases increased or decreased in nominal terms from one lease to the next. It also shows that compared with a previous comparable lease, capital rentals have decreased in 40 per cent of new leases, increased in around one-third of new leases, and remained unchanged in around one-quarter of new leases. We will examine in further detail after Emerging Thinking what factors explain these changes—considering, for example, competitive pressures and recovery of additional capital expenditure.

26. We also compared new leases agreed as a result of franchise extensions and new leases agreed as a result of franchise re-lets to see whether there were any differences between the two. Table 3 summarizes the results.

TABLE 3 **Nominal capital rental changes from one lease to the next**

	<i>Number of vehicles</i>			<i>Number of leases</i>		
	<i>Number of vehicles</i>	<i>% of total</i>	<i>% of subtotal</i>	<i>Number of leases</i>	<i>% of total</i>	<i>% of subtotal</i>
<i>Franchise extensions</i>						
No change	1,251	10	39	30	14	46
Decrease	591	5	18	10	5	15
Increase	1,409	11	43	26	12	39
Subtotal	3,251	26	100	66	31	100
<i>Franchise re-lets</i>						
No change	3,087	25	33	26	12	18
Decrease	2,812	22	30	75	35	50
Increase	3,453	27	37	48	22	32
Subtotal	9,352	74	100	149	69	100
Total	12,603	100		215	100	

Source: CC analysis.

27. Based on Table 3, 31 per cent of leases (26 per cent by number of vehicles) in our data set related to franchise extensions. The remaining 69 per cent of leases related to franchise re-lets. Leases agreed as a result of franchise re-lets therefore comprised the majority of our data points.
28. Table 3 shows that 46 per cent of leases agreed following franchise extensions were simply rolled over on the same lease terms, with no change in rentals. This compares to only 18 per cent of leases agreed as part of franchise re-lets. The other major difference between franchise extensions and franchise re-lets is that the price decreased from the previous lease in 50 per cent of leases agreed following franchise re-lets compared with 15 per cent of leases agreed as part of franchise extensions. This suggests that there has been potential for greater competitive pressures at franchise re-lets than at franchise extensions.
29. As noted in paragraph 25, we will examine the reasons for these price changes from one lease to the next in further detail after publication of Emerging Thinking.

Analysis of switching

30. In order to understand the competitive pressures at the time of leasing, in this section we analyse the situations in which a TOC has chosen to switch rolling stock.

31. We examined in the substitutability working paper when and how TOCs may choose to use different fleets of rolling stock to those presently in use on a franchise. In particular, we noted that the availability of alternatives may be restricted by issues of timing and we noted that rolling stock usually stays on the same franchise following negotiation of a new lease.

32. In our analysis we have referred to changing the rolling stock used on a particular route as a 'switch' of rolling stock. A switch must involve the movement of rolling stock to a different route for use by a different franchisee; it does not include franchise remappings or a change in franchisee without movement of rolling stock. We have also not included direct replacement of rolling stock that has reached the end of its useful economic life by new rolling stock.¹⁴ Switching in this context is different from switching in most other industries because the customer doing the switching (the new franchisee) is not necessarily the same customer as the one that previously used the rolling stock. This situation arises where a different TOC is awarded the franchise and chooses not to lease the same rolling stock as the previous franchisee.

33. A switch of rolling stock may or may not involve a switch of ROSCO depending on the alternatives available. A TOC may switch to another class of rolling stock which may be owned by the same ROSCO—this is relevant to our consideration of substitutability and market definition. Alternatively a TOC may switch to the same

¹⁴We have considered the constraint imposed by new rolling stock in the capacity working paper.

class or another class of rolling stock owned by another ROSCO—this is relevant to our consideration of competition between the ROSCOs. We consider both in this section (see paragraph 43 ff).

34. Since privatization, switching of rolling stock has occurred for five main reasons:
- (a) *Cascades*. When new vehicles are introduced on a franchise they may trigger the displacement of incumbent rolling stock to another franchise. We term this displacement a ‘first cascade’. Subsequent cascades may also occur if the cascaded rolling stock displaces other used rolling stock on other franchises (we term these ‘second cascades’, ‘third cascades’, etc). The last cascade will occur when the rolling stock is (i) retired, (ii) goes off-lease or (iii) is absorbed to increase service requirements on another franchise. For a cascade to represent a switch it must meet the definition in paragraph 32 such that it involves the movement of rolling stock to a different route for use by a different franchisee.
 - (b) *Changes in demand*. This is where changes in timetabling requirements in new franchises lead to a change in demand for rolling stock on one franchise. As a result, rolling stock is transferred from one franchise to another to satisfy the changes in demand. As an example, Class 150s were transferred in 2005 from One Anglia, where the vehicles were not required, to Arriva Trains Wales, which was experiencing growth in demand.
 - (c) *Swaps*. This is where a TOC takes rolling stock from another TOC’s franchise and gives some rolling stock from its own franchise in exchange. Swaps typically occur because the rolling stock on another franchise may better meet operational requirements. They involve new lease agreements between the relevant TOCs and ROSCOs.
 - (d) *Short-term loan and return*. This is where a ROSCO agrees a short-term lease with a different lessee with an understanding that the rolling stock will be returned to the current lessee in the future. This is often caused by other switching taking

place elsewhere leading to short-term solutions being required. This is different from a sublease because a new lease agreement is reached between the TOC and ROSCO rather than an agreement between TOCs. The lease rental may therefore change.

(e) *Subleases*. This is where a TOC subleases its rolling stock to another TOC. Although an additional way in which TOCs may switch rolling stock, subleasing does not affect the price paid to the ROSCO and also takes place at a premium (see Substitutability working paper). We have therefore not considered subleasing any further in this working paper.

35. We identified 83 instances¹⁵ between privatization and 2010¹⁶ where switching of rolling stock has occurred under the categories (a) to (d) above. This amounted to 2,051 vehicles over a period of 14 years. Of these 83 instances, 57 (covering 1,746 vehicles, or 85 per cent of vehicles switched) were cascades and 26 (covering 305 vehicles, or 15 per cent of vehicles switched) related to instances of (b) to (d) above.¹⁷

36. Figure 1 provides a detailed breakdown of the types of switching that have taken place.

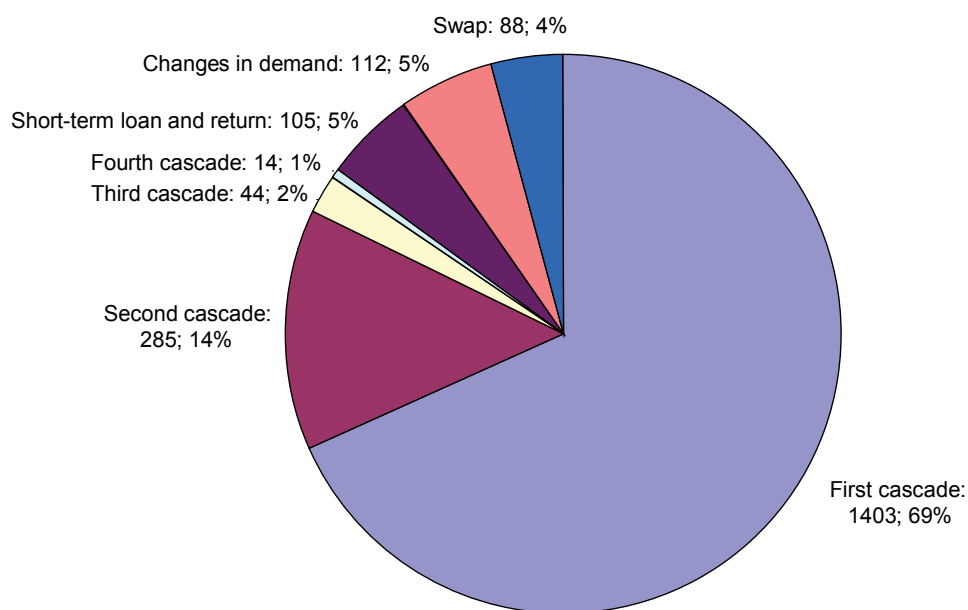
¹⁵This analysis includes five switches that have been/will be instigated by new rolling stock on the London Overground concession and the Merseyrail concession.

¹⁶This includes switching that has already been agreed at recent franchises re-lets but will occur between 2008 and 2010.

¹⁷The ORR identified a total of 25 cascades involving 864 vehicles (ORR's decision document, 26 April 2007, paragraph 4.69). If we take our analysis to 2006, we have 28 cascades involving 758 vehicles. Our results are therefore broadly similar to the ORR's.

FIGURE 1

Types of switching since privatization by number of vehicles



Source: CC analysis of ROSCO data.

Note: Labels are number of vehicles and then per cent of total switching.

37. Figure 1 shows that most cascades are only one iteration long. In other words only a first cascade occurs and there are no subsequent cascades. If there is only one cascade this implies that new rolling stock displaces the incumbent rolling stock; this rolling stock is then moved to another franchise where the rolling stock that is displaced on that franchise is retired or no further rolling stock is displaced because the cascaded rolling stock is used to increase service requirements; no further cascades occur. It is relatively rare (covering only 343 vehicles) that a second cascade occurs.
38. Table 4 shows how these instances of switching have been spread over time since privatization.

39. Table 4 illustrates that most switching¹⁸ has taken place since 2004. Until 2004 switching rarely exceeded 1 per cent of total rolling stock capacity. Since 2004, switching reached nearly 4 per cent of capacity in 2004 and nearly 6 per cent in 2007.¹⁹ The vast majority of switching since 2004 has involved cascades, with other types of switching mainly taking place in the early years after privatization.
40. Figure 2 illustrates that the steep change in switching since 2004 is linked with an increase in the number of franchise re-lets. A number of possible implications may be drawn:
- (a) TOCs rarely break leases and switch mid-franchise;
 - (b) new amalgamated franchises have allowed franchisees to re-evaluate rolling stock requirements and consider alternative rolling stock;²⁰ and
 - (c) the DfT, through its franchise specification, may have created more opportunities for cascades since it took over responsibility for franchise setting from the SRA.

¹⁸We can use Table 4 to calculate that 82 per cent of switching has taken place since 2004.

¹⁹We are still investigating whether some instances of switching actually meet our definition of a switch of rolling stock rather than just a franchise remapping, hence the figures may in practice be lower than those currently stated.

²⁰As we note that redeployment of vehicles within a franchise is not considered as switching, larger franchises may also lead to less observable switching.

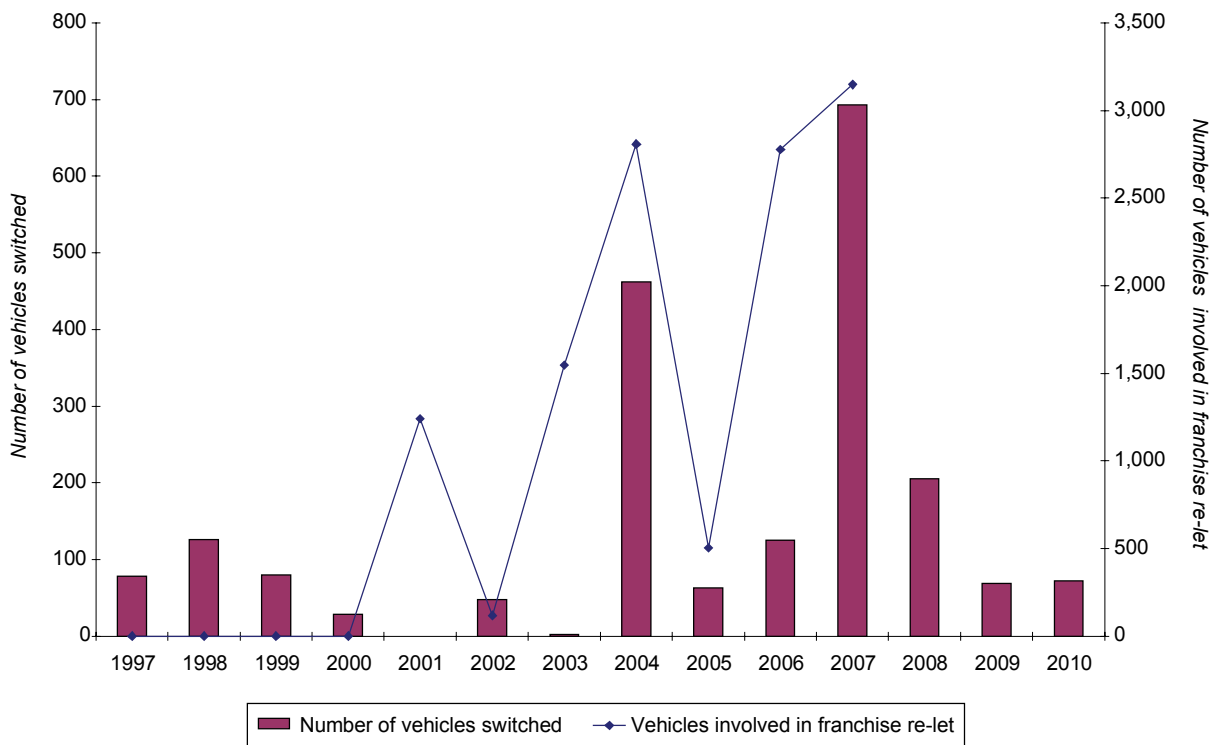
TABLE 4 **Switching between privatization and 2010**

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
<i>Instances of switching</i>															
Cascade	0	1	0	4	4	1	9	2	7	22	5	1	1	0	57
Other	3	3	3	0	1	0	2	6	1	7	0	0	0	0	26
Total instances of switching	3	4	3	4	5	1	11	8	8	29	5	1	1	0	83
<i>Switched vehicles</i>															
Cascade	0	112	0	28	0	39	2	446	14	117	642	205	69	72	1746
Other	78	14	80	0	0	9	0	16	49	8	51	0	0	0	305
Total switched vehicles	78	126	80	28	0	48	2	462	63	125	693	205	69	72	2051
Total capacity	10,688	10,718	10,583	10,557	10,517	10,857	11,382	11,800	12,123	11,703	11,725	11,604	N/A	N/A	N/A
% of total capacity	0.7	1.2	0.8	0.3	0.0	0.4	0.0	3.9	0.5	1.1	5.9	1.8	N/A	N/A	N/A

Source: CC analysis.

FIGURE 2

Switching since privatization by number of vehicles and compared against the number of vehicles involved in franchise re-lets



Source: CC analysis of ROSCO data.

41. Examination of the data on switching revealed that 58 per cent of switched vehicles were physically switched midway through a franchise. At first sight, this figure appears inconsistent with a pattern of switching that is closely associated with franchise re-lets (as shown in Figure 2). However, cascades are usually initiated by an agreement to purchase new rolling stock, which forms part of a TOC’s franchise bid proposal. TOCs and ROSCOs therefore know at the time of the franchise that a cascade will occur when new rolling stock becomes available. The timing of a cascade therefore tends to represent the realization of switching after a process initiated at franchise re-let; any competitive pressure created by the prospect of a cascade is imposed at the time the franchise is let.

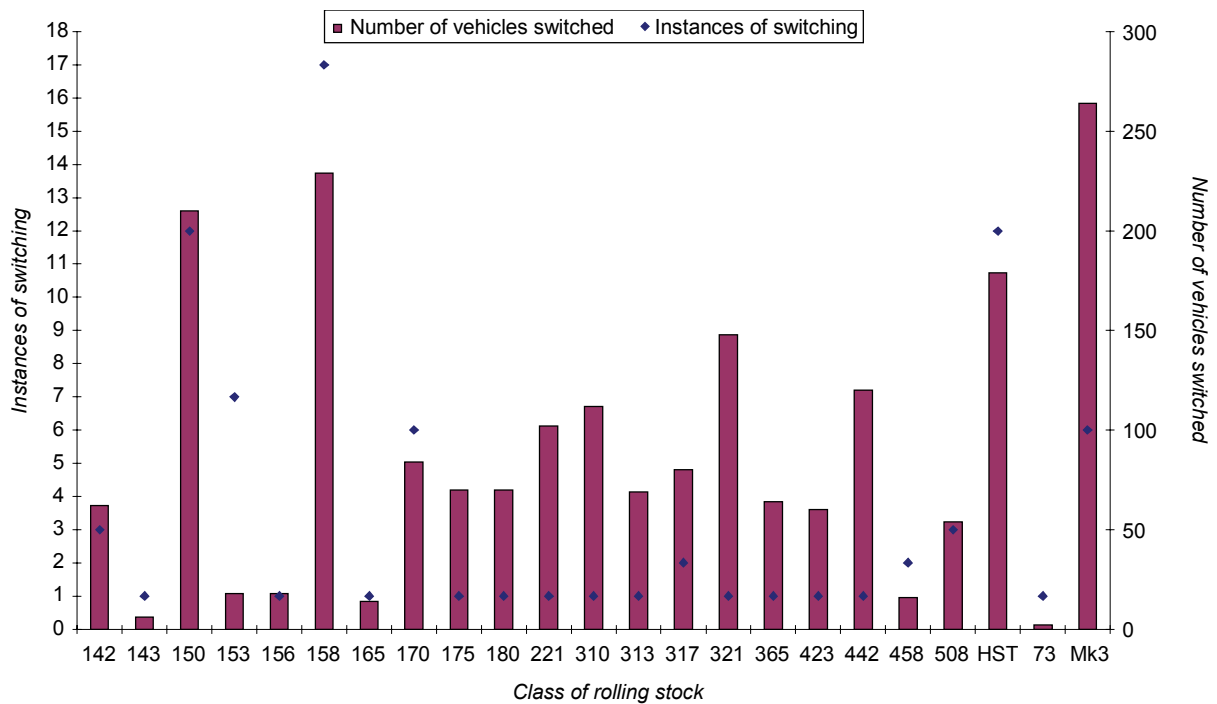
42. Having assessed the timing and type of switching, we now consider (a) which types of rolling stock have been switched in order to inform our analysis of substitutability and market definition, and (b) how each ROSCO has been affected in order to inform our competitive analysis.

Substitutability

43. Figure 3 shows both the instances of switching of each rolling stock class and the number of vehicles that have been switched.

FIGURE 3

Classes of rolling stock switched since privatization



Source: CC analysis of ROSCO data.

44. Figure 3 shows the 23 classes of rolling stock that have been switched from one franchise to another since privatization. The 23 classes in Figure 3 represent less than a third of the 90 or so classes used since privatization. Moreover, 13 of these 23 classes have only been involved in one instance of switching. Figure 3 shows that the most common classes switched were Classes 150, 158, HSTs and Mk 3

coaches. These classes account for nearly 60 per cent of the 83 instances of switching and 43 per cent in terms of the number of vehicles.

45. Figure 3 suggests that a limited number of rolling stock classes have been moved around the rail network. A lack of actual switching may be an indicator of a lack of credible competitive threats.²¹ This implies that a large number of rolling stock classes have faced relatively little competitive pressure. Classes which have not been cascaded include classes with a large number of vehicles such as Classes 159, 166, 168, 315, 444, 455 and 465. In addition, a large number of new rolling stock classes have only displaced vehicles and not been cascaded themselves. These include Classes 170, 350, 357, 375, 390 and 450. However, this stock is relatively new and much is on its first lease so we would not expect cascades during the term of a lease.
46. We can also use the data to assess which classes replace one another. Table 5 gives an indication of the extent of substitutability between classes.

²¹We consider the potential for switching in our consideration of which rolling stock is a suitable alternative (see the Substitutability working paper).

TABLE 5 **Switching between classes**

<i>Switched class</i>	<i>Class replacing switched class</i>	<i>Classes displaced by switched class</i>
73	460	None
142	142, 150, 158	142
143	150	None
150	142, 143, 156, 158, 170, 172	153, 117, Mk2
153	150, 158	None
156	150	None
158	158, 170, 175, 180, 220, 350	158, 170
165	None	None
170	158, 222	Mk3
175	185	158
180	HST	None
221	HST	None
310	323	302
313	378	None
317	357	None
321	350	None
365	375	317
423	450	421
442	458	None
458	None	None
508	378	None
HST	220, 221	180, 221
Mk3	390	221, 322, Mk2

Source: CC analysis.

47. Examination of Table 5 shows that switching has typically concerned two broad groups of rolling stock:²²

- (a) high-speed trains—HSTs, Voyagers (Class 220s and 221s) and Class 180s; and
- (b) DMUs—Classes 142, 143, 150, 153, 156, 158 and 170.²³

48. Table 5 also shows that in most cases switching does not displace any rolling stock to another franchise (hence the lack of second, third or fourth cascades).²⁴ Referring back to Figure 3 in conjunction with Table 5, the largest cascades have been driven by:

- (a) replacement of Mk 3 coaching stock by Virgin Pendolinos (Class 390s);

²²We note that substitutability between classes of rolling stock may in some cases be asymmetric as set out in the Substitutability working paper.

²³There has also been a small amount of EMU switching but this has been much less significant relative to the total number of EMU vehicles.

²⁴As explained in paragraph 37.

- (b) replacement of HSTs by Virgin Voyagers (Class 220s and 221s); and
- (c) DMUs (notably Classes 150 and 158) have been displaced by new Class 170s and Class 185s.

Competition between ROSCOs

49. Examining switching in relation to each ROSCO, Tables 6 and 7 show the extent to which each ROSCO's rolling stock has moved from one franchise to another in terms of instances of switching and number of vehicles switched.²⁵ The rows in each table show the ROSCO that owned the rolling stock that was moved from one franchise to another. The columns show the ROSCO that owned the rolling stock that displaced the rolling stock that was moved. So, for example, where Angel's rolling stock has been moved from one franchise to another as a result of Porterbrook's new rolling stock, this would show up in Table 6 as one instance of switching in the row for Angel and the column for Porterbrook.

TABLE 6 Instances of switching between ROSCOs since privatization

<i>Instances of switching</i>	<i>Displacing class owned by ROSCO ('switching to')</i>						<i>Total</i>
	<i>Angel</i>	<i>HSBC</i>	<i>Porterbrook</i>	<i>TfL</i>	<i>Voyager Leasing</i>	<i>No replacement</i>	
<i>Switched class owned by ROSCO ('switching from')</i>							
Angel	7	2	13	1	2	7	32
HSBC	1	1	2	1	0	0	5
Porterbrook	7	6	17	0	5	10	45
Voyager Leasing	0	0	1	0	0	0	1
Total	15	9	33	2	7	17	83
							<i>per cent</i>
Angel	8	2	16	1	2	8	39
HSBC	1	1	2	1	0	0	6
Porterbrook	8	7	20	0	6	12	54
Voyager Leasing	0	0	1	0	0	0	1

Source: CC analysis.

²⁵An instance of switching for a ROSCO implies that the ROSCO's rolling stock has been moved to another franchise/moved off-lease. So, for example, movement of Class 158 owned by Angel is one instance of switching involving Angel's rolling stock.

TABLE 7 Number of vehicles switched between ROSCOs since privatization

Number of vehicles Switched class owned by ROSCO (‘switching from’)	Displacing class owned by ROSCO (‘switching to’)							2007 capacity	Capacity switched %
	Angel	HSBC	Porterbrook	TfL	Voyager Leasing	No replacement	Total		
Angel	112	76	386	9	23	124	730	4,131	18
HSBC	60	64	260	69	0	0	453	3,468	13
Porterbrook	284	167	149	0	117	49	766	3,653	21
Voyager Leasing	0	0	102	0	0	0	102	352	29
Total	<u>456</u>	<u>307</u>	<u>897</u>	<u>78</u>	<u>140</u>	<u>173</u>	<u>2,051</u>	<u>11,604</u>	<u>18</u>
							<i>per cent</i>		
Angel	5	4	19	0	1	6	36		
HSBC	3	3	13	3	0	0	22		
Porterbrook	14	8	7	0	6	2	37		
Voyager Leasing	0	0	5	0	0	0	5		

Source: CC analysis.

50. Tables 6 and 7 show that in terms of both number of instances and vehicle numbers Porterbrook has experienced the most switching of its vehicles,²⁶ with HSBC the least.²⁷ Indeed, HSBC has been affected by only five instances of switching of its vehicles, compared with 32 for Angel and 45 for Porterbrook. We can set the number of vehicles switched in the context of total vehicle numbers currently owned by each ROSCO. Table 7 shows that switched rolling stock amounts to 18 per cent of Angel’s July 2007 capacity, 13 per cent for HSBC, 21 per cent for Porterbrook and 29 per cent for Voyager Leasing. This suggests that although some of each ROSCO’s rolling stock has come under competitive pressure, a large percentage of each ROSCO’s rolling stock has never been switched.

²⁶Porterbrook submitted that 10 per cent of its stock had been involved in a cascade in the past two years and since 2000, approximately 500 of its vehicles had been involved in cascades. This is consistent with our calculations, which show that 379 of Porterbrook’s vehicles (10 per cent) were cascaded in 2006 and 2007, and 702 vehicles cascaded since 2000. This takes into account switching as a result of the recent Midlands franchises, not completed when Porterbrook submitted its figures to the ORR, hence the figure is higher than 500 vehicles.

²⁷We consider below whether this is switching to another ROSCOs’ vehicles or switching to other vehicles owned by the same ROSCO.

51. We can use Table 7 to calculate that 15 per cent²⁸ of switching involved switching between rolling stock owned by the same ROSCO (for example, from Angel rolling stock to Angel rolling stock), and 8 per cent of vehicles have involved no replacement. The remaining 77 per cent of vehicles switched (1,579 vehicles) have involved a switch from one ROSCO to another—33 per cent relate to switching between Angel and Porterbrook, 21 per cent between HSBC and Porterbrook, 7 per cent between Angel and HSBC, and the remaining 15 per cent concerns Voyager Leasing and TfL's new Class 378s.²⁹ The main reason for Angel and Porterbrook covering so many of the switched vehicles relative to HSBC appears to be driven by their greater ownership of most DMUs and HSTs, which are the main types of rolling stock that have been switched (see paragraph 48).

52. In the context of switching we note three further considerations:

(a) We will consider after publication of Emerging Thinking how many of these instances of switching have been orchestrated by the DfT, and how many were initiated by TOCs.

(b) In addition to actual switching, we will consider threats to switch.

(c) The DfT considered that because rolling stock can, and sometimes does, get moved between franchises does not in itself provide any meaningful constraint on pricing. It stated that pricing will only be constrained if there is a material risk of rolling stock going off lease rather than simply being transferred to a different lease with a different TOC but with similar lease terms.³⁰ We will consider the

²⁸15 per cent comprises 5 per cent Angel to Angel, 3 per cent HSBC to HSBC, 7 per cent Porterbrook to Porterbrook.

²⁹Figures may not sum to 100 per cent due to rounding.

³⁰This is a slightly different theory of harm than the argument that there is ineffective competition at lease renewal. This approach suggests that no matter how much competition there is, it can never be effective because there is excess demand for rolling stock. The only real constraint on existing stock therefore comes from new build. We will need to consider which description of the market fits best—one of ineffective competition or one of competition being ineffective because of excess demand.

extent to which displacement of rolling stock through switching leads to a reduction in prices when the rolling stock is let on another franchise.

Conclusion on switching

53. The analysis above, which has focused on the instances of actual switching, has shown that:

- (a) We identified 83 instances between privatization and 2010 where switching of rolling stock has occurred/will occur. This amounted to 2,051 vehicles over 14 years. Of these 83 instances, 57 were cascades. Most cascades have been only one iteration long.
- (b) Most switching has taken place since 2004 as the number of franchise re-lets has increased. Until 2004 switching in any one year rarely exceeded 1 per cent of total capacity. Since 2004, switching reached nearly 4 per cent of capacity in 2004 and nearly 6 per cent in 2007.³¹
- (c) Vehicles from only 23 classes of rolling stock (out of around 90 classes that have been used since privatization) have been switched since privatization. Many of these instances of switching relate to a handful of classes, notably Classes 150, 158, HSTs and Mk 3 coaches. This suggests that there is a limited number of rolling stock classes that can be moved around the rail network with relative ease.
- (d) 15 per cent of vehicles switched involved switching between rolling stock owned by the same ROSCO (for example, from Angel rolling stock to Angel rolling stock), and 8 per cent of vehicles have been moved to meet increases in demand on other franchises. The remaining 77 per cent of vehicles switched (1,579 vehicles) have involved a switch from one ROSCO to another.

³¹We are still investigating whether some instances of switching actually meet our definition of a switch of rolling stock rather than just a franchise remapping, hence the figures may in practice be lower than those currently stated.

(e) We will consider further (a) the role of the DfT in relation to cascades, (b) threats of switching, and (c) the impact of switching on prices.

Switching costs

54. One possible explanation for the lack of switching identified above is that there may be switching costs which prevent competition from working effectively. Switching costs may decrease customers' incentives to search for, or switch to, alternatives that could meet their needs. In this section, we consider switching costs that may occur when a TOC chooses to switch rolling stock at franchise re-let.
55. In our analysis of switching costs, we consider that it is important to differentiate between costs that will be incurred as a result of the franchise process (ie irrespective of whether a franchisee is switching rolling stock) and costs that will only be incurred as a result of switching rolling stock. We make this distinction as necessary.
56. The following costs were raised by third parties as costs of switching rolling stock:
- (a) livery change;
 - (b) interior modifications;
 - (c) route acceptance;
 - (d) staff training; and
 - (e) other costs.
57. We asked the TOCs and ROSCOs to comment on these switching costs, in particular quantifying the costs and assessing whether or not the costs are 'essential' switching costs (ie whether switching can only be accomplished by incurring such costs). In this section, we first assess these responses, before assessing the extent to which these

switching costs act as a barrier to switching rolling stock and whether they are costs over and above the usual costs incurred as a result of a change of franchisee.

Livery change

58. When rolling stock is transferred from one franchise to another, the rolling stock usually undergoes a livery change in order to fit with the new franchisee's branding. Livery changes are often conducted as part of a planned maintenance examination (such that the cost is recovered through non-capital rentals) in order to minimize the amount of time that the rolling stock is out of service. The cost of the livery change is borne by the TOC.
59. Estimates for the costs of livery changes provided by the parties and third parties varied to some degree. Angel and HSBC submitted that indicative estimates for these costs were between £[redacted] and £[redacted] per vehicle and between £[redacted] and £[redacted] per vehicle respectively. Three TOCs [redacted] provided estimates of £2,000 to £12,000 per vehicle, with application of vinyl decals cheaper than repainting. The DfT stated that a livery change costs £10,000 to £12,000 per vehicle and would take three to four days.
60. Three TOCs [redacted] suggested that a livery change was desirable, not essential, and one TOC [redacted] stated a livery change may be 'essential' if vehicles need to be coupled together. Angel, HSBC and Porterbrook all considered that this was not an essential switching cost. We consider that livery changes are necessitated by a change of franchisee and so are required whether or not the new franchisee chooses to change rolling stock.³²

³²This will not be the case if the incumbent franchisee wins the franchise re-let.

Interior modifications

61. When a TOC switches rolling stock it may also require some interior modifications so that the rolling stock meets its operational requirements. These may be small scale or extensive.

Small-scale interior modifications

62. Small-scale interior modifications tend to include seat coverings, new flooring and internal painting—generally, non-engineering-based modifications that improve the interior of the train.
63. Three TOCs [redacted] suggested that these costs may range from £2,000 to £75,000 per vehicle. HSBC submitted that interior modifications can cost around £[redacted] per unit depending on the specification, and Porterbrook gave a cost estimate of £[redacted] per vehicle. The DfT stated that small-scale modifications amount to around £50,000 per vehicle and may take up to 12 months depending on the size of fleet. These costs are usually incorporated into the capital rental that the TOC pays the ROSCO.
64. Interior modification costs may, however, be required irrespective of whether a new franchisee chooses to change rolling stock. For example, seat covers may become worn or flooring aged.

Extensive interior modifications

65. Two TOCs [redacted] submitted that extensive interior modifications might cost up to £250,000 per vehicle. HSBC submitted that an extensive interior upgrade could cost £[redacted] to £[redacted] per vehicle depending on scope and whether it was conducted under a scheduled maintenance examination. Porterbrook submitted that in many cases extensive interior refurbishments were not essential, but a transfer of rolling stock

could provide a natural opportunity to undertake such work and may represent better value for money than new rolling stock. The DfT stated that extensive modifications amount to around £100,000 per vehicle and may take up to two years depending on the size of a fleet. Costs for such refurbishments may be borne by a TOC or ROSCO, depending on negotiations.

66. We will be considering refurbishment costs in further detail after Emerging Thinking but here we note that these costs are not likely to be essential costs and may be incurred whether or not a new franchisee chooses to change rolling stock.

Route Acceptance

67. Proposals to use rolling on stock on a particular route are assessed by Network Rail's Route Acceptance Process. This process confirms the compatibility of the vehicle with the infrastructure by the completion of specific assessments. Successful acceptance is confirmed by means of formal certificates. Rolling stock is restricted in operation to those routes for which certification has been granted.
68. Route Acceptance costs can vary significantly depending on how similar the rolling stock is to the incumbent fleet. The more rolling stock characteristics are different to the incumbent rolling stock, the more approval procedures will need to be completed. For this reason, placing an estimate on the costs of Route Acceptance is difficult. National Express told the ORR that simple clearance would cost £25,000 to £50,000³³ compared with £100,000 if complicated. The DfT suggested that Route Acceptance costs were significant and it might take up to a year to achieve. These costs are borne by the TOC.

³³These costs are a cost per application for Route Acceptance.

69. Network Rail told us that the Route Acceptance Process costs £100,000 for a relatively standard shape of rolling stock, and £1–£1.5 million for a whole new type of fleet. Network Rail’s own guidance states that complete introduction of a new train can take up to three to four years. Network Rail told us that it works in parallel with manufacturing timescales and does not delay vehicle introduction. We consider that the whole process may in some cases make the cost of alternative rolling stock prohibitive.
70. Two TOCs [redacted] stated that these were essential switching costs. One TOC [redacted] submitted that it would not switch rolling stock when there was a need for a new Route Acceptance Process. We consider that Route Acceptance is a unique cost of switching not related to franchise re-lets.

Staff training

71. Where a TOC wishes to switch to a different class of rolling stock, it will need to ensure that its staff are adequately trained to operate (and, potentially, maintain) the rolling stock. Three TOCs [redacted] commented on these costs, which are borne by the TOC:
- (a) National Express submitted that these consisted of a one-off cost of £775,000 for learning how to operate a new train.³⁴
 - (b) Serco NedRailways suggested minimal training was required for maintenance staff when rolling stock was similar to that displaced (£10,000 to £20,000). In the case of train crew training, this could be more significant depending upon the number of drivers involved, and could be in the order of £50,000.³⁵
 - (c) Stagecoach submitted that the costs could vary widely, taking up to six weeks.

³⁴£775,000 is based on the following—£175 x 2 (driver and relief) x 5 days x 300 drivers + £125 x 2 (conductor and relief) x 5 days x 200 conductors.

³⁵These are one-off costs.

72. Porterbrook considered these costs to be essential if the rolling stock being transferred was different from other rolling stock currently operating. The DfT suggested that costs and timing were dependent on the scale of switching but might take up to a year.

Other costs

73. Three TOCs [X] cited costs of setting up maintenance facilities (for example, with different spares) as critical for switching. Porterbrook considered costs of maintenance and service support facilities to be essential if the rolling stock being transferred was different from other rolling stock currently operating. We consider that these costs, which TOCs did not quantify, are also independent of the franchise process.
74. An additional 'cost' of switching is the risk associated with changing rolling stock, especially when considered in conjunction with the DfT's 'deliverability' criteria. If rolling stock either (a) has not been used by a TOC before, or (b) has not been used on the franchise, then there is a risk that the rolling stock will not perform to the required standards. This risk may well appear greater than many of the other switching costs above because TOCs must meet the deliverability criteria laid out in franchise specifications, or risk significant financial penalties or loss of the franchise. In such circumstances, a TOC may limit its alternatives to incumbent rolling stock, or rolling stock it has used on other franchises. This appears to be supported by the analysis of switching above which shows that it is older classes that get switched most often (for example, Classes 158 and Mark III coaches).

Our view on switching costs

75. Table 8 summarizes the views from TOCs and ROSCOs.

TABLE 8 **Analysis of possible switching costs**

<i>Switching cost</i>	<i>Estimated cost per vehicle</i>	<i>Estimated fixed cost</i>	<i>Timing*</i>	<i>Essential or desirable</i>	<i>Paid for by?</i>	<i>Comments</i>
Livery change	£10,000	N/A	Less than a week	Desirable	TOC	Incurred at change of franchisee as well as at change of rolling stock.
Small-scale modifications	Up to £75,000	N/A	Up to a year	Desirable	TOC	May be a cost incurred irrespective of whether switching rolling stock.
Extensive modifications	Varies	N/A	Up to 2 years	Desirable	TOC or ROSCO	May be a cost incurred irrespective of whether switching rolling stock.
Route clearance	N/A	£100,000	Up to a year	Essential	TOC	Only necessary if switch to different class of rolling stock without route clearance.
Staff training	N/A	£70,000–£775,000	Up to a year	Essential	TOC	Only necessary if switch to different class of rolling stock not used before.
Maintenance facilities	N/A	N/A	Highly variable as temporary solutions are possible	Essential	TOC	Necessary when switching to a different class of rolling stock, but independent of franchise process.

Source: CC analysis of TOC and ROSCO responses to CC's questionnaire.

*Timing based on the DfT's initial submission to the ORR.

76. Our analysis has shown that livery changes and small-scale and extensive vehicle modifications may be required whether or not a new franchisee chooses to change rolling stock. These are therefore not 'essential' switching costs if the switch is at the change of a franchise.
77. Our analysis also revealed that it is important to distinguish between switching within class and between classes:
- (a) switching within a class (ie from one ROSCO's fleet to another ROSCO's fleet) should be relatively straightforward because there are no Route Acceptance costs, staff training costs or maintenance facilities costs; however
 - (b) switching between classes (and potentially between ROSCOs) may be costly, especially if a TOC has no knowledge of that rolling stock or Route Acceptance procedures must be completed.
78. HSBC submitted that these switching costs were minor when amortized over a seven-year franchise period. Based on very indicative capital rentals of £13 million over seven years for a small fleet of vehicles,³⁶ switching costs of between £200,000 and £1 million would amount to between 1 and 8 per cent of the capital rentals.

Conclusion on switching costs

79. Given the potential for switching costs to vary so widely and the extent of time and cost it can take for rolling stock to be Route Accepted, TOCs indicated that they were only likely to switch to rolling stock that was already Route Accepted or required straightforward Route Acceptance. In addition, TOCs are unlikely to want to invest significant money in staff training. There is also the added risk of taking on rolling

³⁶Using indicative capital rentals of £5,000 per vehicle per month, this amounts to £420,000 over a seven-year period for a vehicle, or £1.3 million for a three-vehicle unit. A fleet of, say, ten of these three-vehicle units would therefore amount to capital rentals of £13 million over seven years.

stock which (a) a TOC has not used before and (b) has not been used on the franchise. When coupled with a lack of switching opportunities these appear to be the main factors that have prevented switching.