

## Terms of reference and conduct of the inquiry

### Terms of reference

1. On 18 June 2012, the OFT sent the following reference to the CC:
  1. Whereas in exercise of its duty under section 22(1) of the Enterprise Act 2002 (the Act) to make a reference to the Competition Commission (the Commission) in relation to a completed merger the Office of Fair Trading (the OFT) believes that it is or may be the case that—
    - (a) a relevant merger situation has been created in that:
      - (i) enterprises carried on by or under the control of Epwin Holdings Ltd have ceased to be distinct from enterprises carried on by or under the control of Latium Building Products Holdings Limited; and
      - (ii) as a result, the conditions specified in section 23(4) of the Act will prevail, or will prevail to a greater extent, with respect to the supply of extruded PVC roofline products in the UK; and
    - (b) the creation of that situation has resulted, or may be expected to result, in a substantial lessening of competition within any market or markets in the United Kingdom for goods or services, including the supply of extruded PVC roofline products.
  2. Therefore, in exercise of its duty under section 22(1) of the Act, the OFT hereby refers to the CC, for investigation and report within a period ending on 2 December 2012, on the following questions in accordance with section 35(1) of the Act—
    - (a) whether a relevant merger situation has been created; and
    - (b) if so, whether the creation of that situation has resulted, or may be expected to result, in a substantial lessening of competition within any market or markets in the UK for goods and services.

*(signed)* ALI NIKPAY  
 Senior Director  
 Office of Fair Trading  
 18 June 2012

2. On 16 July 2012, the OFT subsequently sent the following varied reference to the CC:
  1. Whereas in exercise of its duty under section 22(1) of the Enterprise Act 2002 (the Act) to make a reference to the Competition Commission (the Commission) in relation to a completed merger the Office of Fair Trading (the OFT) believes that it is or may be the case that—
    - (a) a relevant merger situation has been created in that:
      - (i) enterprises carried on by or under the control of Epwin Holdings Ltd have ceased to be distinct from enterprises carried on by or under the

control of Building Plastics Holdings Limited, CET Glass Processors Holdings Limited and Latium Building Products Holdings Limited; and

(ii) as a result, the conditions specified in section 23(4) of the Act will prevail, or will prevail to a greater extent, with respect to the supply of extruded PVC roofline products in the UK; and

(b) the creation of that situation has resulted, or may be expected to result, in a substantial lessening of competition within any market or markets in the United Kingdom for goods or services, including the supply of extruded PVC roofline products.

2. Therefore, in exercise of its duty under section 22(1) of the Act, the OFT hereby refers to the CC, for investigation and report within a period ending on 2 December 2012, on the following questions in accordance with section 35(1) of the Act—

(a) whether a relevant merger situation has been created; and

(b) if so, whether the creation of that situation has resulted, or may be expected to result, in a substantial lessening of competition within any market or markets in the UK for goods and services.

*(signed)* ALI NIKPAY  
Senior Director  
Office of Fair Trading  
16 July 2012

3. The effect of the varied reference was to include the acquisition by Epwin Holdings Ltd of Building Plastics Holdings Limited and CET Glass Processors Holdings Limited, in addition to Latium Building Products Holdings Limited.

### **Conduct of the inquiry**

4. On 3 July 2012, an [administrative timetable](#) for our inquiry was published on the CC website.

5. On 19 July 2012, members of the Inquiry Group, accompanied by staff, visited the Swish factory in Tamworth and the Kestrel factory in Scunthorpe.

6. We invited a wide range of interested parties to comment on the merger. These included suppliers, stockists and end-users of the main parties; and competitors and potential competitors for the supply of extruded PVC roofline products. We sent detailed questionnaires to competitors, stockists, end-users and potential entrants. Evidence was also obtained through further written requests to third parties.

7. We also held six hearings with selected third parties, including competitors, stockists and a large national house builder. [Summaries of these hearings](#) can be found on our website. We also received written evidence from the main parties, and [a non-confidential version of their main submission](#) is on our website.

8. We also commissioned JDS Research Ltd to carry out a survey of end-users and the main parties' stockists. The [results of the survey](#) were published on the CC website.

9. On 20 July 2012, we published an [issues statement](#) on our website, setting out the areas of concern on which the inquiry would focus. There were no responses to the

issues statement. We also sent to the main parties some working papers and an annotated issues statement for comment.

10. On 6 September 2012, we held a hearing with Epwin. Over the course of the inquiry, the main parties also responded to a number of information requests from the CC, including comments on CC working papers and a response submission to the survey results.
11. On 8 October 2012, the CC announced its [provisional findings](#). On 10 October 2012, a non-confidential version of the [provisional findings report](#) and [appendices](#) were published on the CC website.
12. We would like to thank all those who have assisted in our inquiry.

### ***Interim measures***

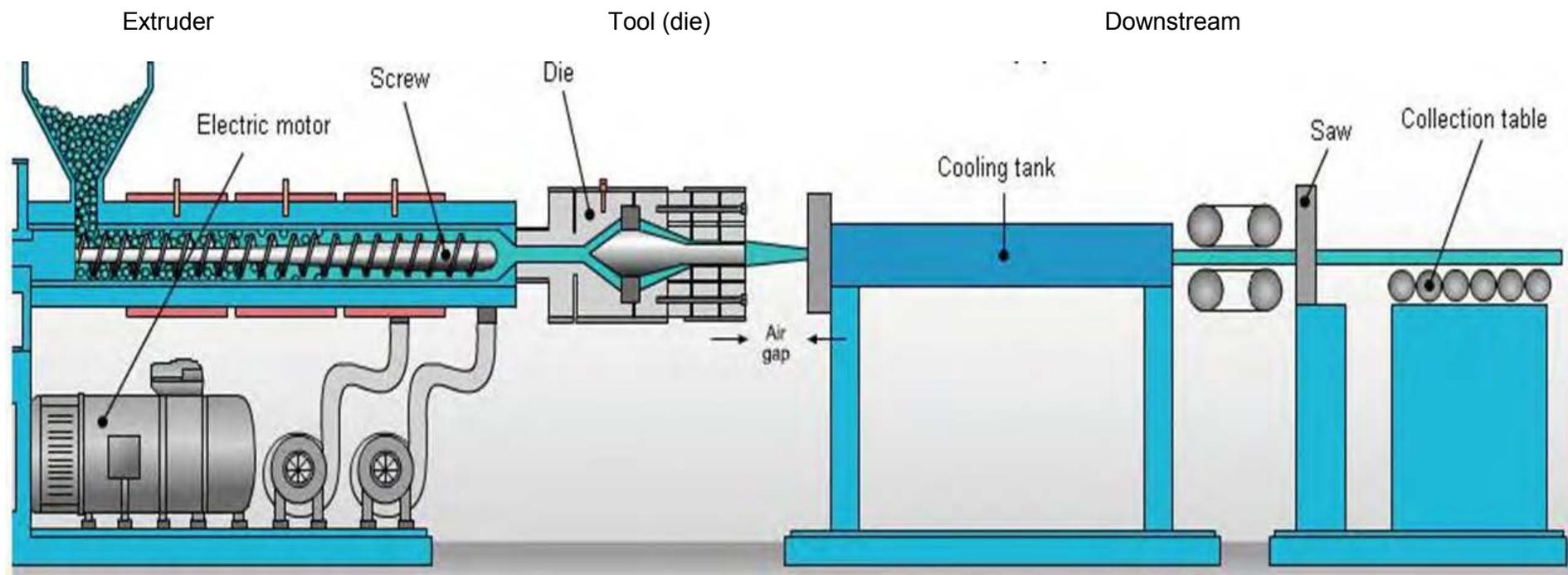
13. On 21 June 2012, we [adopted the initial undertakings](#) accepted by the OFT from Epwin on 27 February 2012. These [interim undertakings](#) are on our website.
14. On 3 July 2012, we [directed Epwin to appoint a monitoring trustee](#) in order to prevent any pre-emptive action by Epwin which might prejudice the outcome of the reference or impede the CC from taking remedial action if it were to reach an SLC decision.
15. On 22 August 2012, we [directed Epwin to appoint a hold separate manager](#) in order to prevent any pre-emptive action by Epwin which might prejudice the outcome of the reference or impede the CC from taking remedial action if it were to reach an SLC decision.
16. On 10 September 2012, we accepted a derogation to the undertakings, which allowed Kestrel to meet Epwin to discuss Kestrel's proposed turnaround plan.
17. On 14 September 2012, we accepted a derogation to the undertakings, which allowed Kestrel to proceed with [✂].

## Production process

1. PVC extrusion involves melting plastic raw materials and forcing the melted plastic through machines which can be adjusted according to the final profile and shape of the plastic product required. Specifically, plastic granules (raw PVC) and other additives, such as colorants or foaming agents for cellular PVC products, are fed into the hopper of the extruder and are drawn down into a screw. An electric motor coupled to a hydraulic drive continuously turns the screw, which is contained in the machine's barrel. The barrel and screw are heated by external heating elements. As the plastic granules move along the screw they melt under pressure and are forced through a tool (sometimes referred to as a 'die') which is located at the end of the barrel. The tool contains the cross-section (the 'profile') of the extrusion required, which shapes the product as it passes through it. The majority of cellular products also contain an outer skin which is simultaneously co-extruded on to the product.
2. The tool creates a continuous extruded profile of melted PVC which is further processed by ancillary downstream equipment. The details of this process depend on the specific product being manufactured. In the case of roofline products, for example, the profile is fed into a dry cooler to reduce its temperature while maintaining its shape. At this point, the haul-off pulls the PVC profile through a cooling tank, where its temperature is reduced further by submerging it in water. Finally, a saw cuts the profile to the required length. The product can then be packaged or continue for further processing, such as foiling which involves putting a decorative film on to the outside of the product.
3. The extrusion process also involves ancillary equipment which may differ according to the product being extruded. This includes co-extruders, cooling baths, take-off rollers, vacuum calibration, cutters and other finishing equipment to shape and form the end product. For example, co-extrusion is used to combine two different materials or colours in a single profile, while vacuum calibration devices are used to ensure that pipes and hollow extrusions are dimensionally accurate.
4. Figure 1 illustrates the PVC extrusion production process.

FIGURE 1

**PVC extrusion process**



Source: Epwin.

## Financial analysis of Latium and Kestrel

### Latium's financial position

1. Table 1 sets out the consolidated balance sheets of Latium at 31 October 2010 and at 31 December 2011. These figures have been taken from the consolidated statutory accounts of Latium.<sup>1</sup>

TABLE 1 Balance sheets of Latium, 2010 and 2011

	<i>£ million</i>	
	<i>31 October 2010</i>	<i>31 December 2011</i>
Fixed assets:		
Tangible assets	2.0	1.8
Goodwill	<u>2.0</u>	<u>1.9</u>
	<u>4.0</u>	<u>3.7</u>
Current assets:		
Stocks	2.7	2.5
Debtors	10.2	7.6
Cash at bank	<u>-</u>	<u>0.2</u>
	<u>12.9</u>	<u>10.3</u>
Creditors due within one year	<u>-11.4</u>	<u>-11.6</u>
Net current assets/liabilities	<u>1.5</u>	<u>-1.3</u>
Total assets less current liabilities	5.5	2.4
Creditors due after one year	<u>-4.2</u>	<u>-2.9</u>
Provisions for liabilities and charges	<u>-0.9</u>	<u>-</u>
	<u>0.4</u>	<u>-0.5</u>
Capital and reserves:		
Share capital	-	-
Profit and loss	<u>0.4</u>	<u>-0.5</u>
Shareholders' funds	<u>0.4</u>	<u>-0.5</u>

Source: Latium statutory accounts.

2. At 31 December 2011 tangible fixed assets almost wholly comprised plant and machinery with an original cost of £5.6 million. Debtors included £2.0 million from related parties and a deferred tax asset of £2.1 million, principally arising from unutilized tax losses carried forward. [X]
3. Latium's accounts show negative shareholders' funds of £0.5 million and [X]. Furthermore the accounts included goodwill of £1.9 million and a deferred tax asset of £2.1 million (which would only be realizable against future profits). [X]

### Kestrel's trading performance

4. Table 2 sets out the profitability of Kestrel (including Celuform) for the years ended 31 October 2009 and 2010 and the 14-month period ended 31 December 2011. These figures have been extracted from the management accounts and adjusted by Latium to exclude exceptional items. They also exclude certain consolidation adjustments, such as amortization of goodwill; hence arguably represent an accurate view of the underlying profitability of Kestrel and therefore of Latium.

<sup>1</sup> The consolidated statutory accounts for both of these accounting periods include four companies: Latium, Latium Building Products Ltd, Kestrel and Celuform. The latter two are the only trading companies within the group and for management accounting purposes all transactions of Celuform are dealt with within Kestrel.

TABLE 2 Profitability of Kestrel, 2009 to 2011

	Years ended		14 months
	31 October	2010	ended
	2009		31 December
			2011
Sales volume (tonnes)	[x]	[x]	[x]
			<i>£ million</i>
Sales	[x]	[x]	[x]
Materials	[x]	[x]	[x]
Direct labour	[x]	[x]	[x]
Manufacturing overheads	[x]	[x]	[x]
Depreciation	[x]	[x]	[x]
Energy	[x]	[x]	[x]
Packaging	[x]	[x]	[x]
Insurance	[x]	[x]	[x]
Engineering	[x]	[x]	[x]
Gross margin	[x]	[x]	[x]
Distribution*	[x]	[x]	[x]
Warehousing	[x]	[x]	[x]
Finance and administration	[x]	[x]	[x]
Sales and marketing	[x]	[x]	[x]
Operating profit	[x]	[x]	[x]
Exceptional items	[x]	[x]	[x]
Interest payable	[x]	[x]	[x]
Profit before tax	[x]	[x]	[x]
EBITDA†	[x]	[x]	[x]
Average price per tonne (£)	[x]	[x]	[x]
			<i>per cent</i>
Gross margin‡	[x]	[x]	[x]
Net margin§	[x]	[x]	[x]

Source: Latium management accounts.

\*[x]

†Earnings before interest, tax, depreciation and amortization (excluding exceptional items).

‡Calculated as gross profit divided by sales (on unrounded figures).

§Calculated as operating profit divided by sales (on unrounded figures).

- The financial performance of Kestrel deteriorated in 2010 and 2011 (after allowing for the longer accounting period). EBITDA fell from £[x] million in 2009 to £[x] million in 2010 and £[x] million in 2011 (on an annualized basis), although both gross and net profit margins rose in 2011 after falling in 2010.
- Table 3 sets out the actual results of Kestrel for the six months ended 30 June 2011 and 2012 and the budget for the six months ended 30 June 2012.

TABLE 3 Actual and budget results of Kestrel for the six months ended 30 June 2011 and 2012

	<i>£ million</i>		
	<i>Actual</i> <i>6 months ended</i> <i>30 June</i> <i>2011</i>	<i>Actual</i> <i>6 months ended</i> <i>30 June</i> <i>2012</i>	<i>Budget</i> <i>6 months ended</i> <i>30 June</i> <i>2012</i>
Turnover	[X]	[X]	[X]
Cost of sales	[X]	[X]	[X]
Gross profit	[X]	[X]	[X]
Overheads	[X]	[X]	[X]
Operating profit	[X]	[X]	[X]
Exceptional items	[X]	[X]	[X]
Interest payable	[X]	[X]	[X]
Profit before tax	[X]	[X]	[X]
EBITDA*	[X]	[X]	[X]
			<i>per cent</i>
Gross profit margin†	[X]	[X]	[X]
Net profit margin‡	[X]	[X]	[X]

Source: Latium management information.

\*Excluding exceptional items.

†Calculated as gross profit divided by sales (on unrounded figures).

‡Calculated as operating profit divided by sales (on unrounded figures).

7. Table 3 suggests [X].

## Pricing analysis

### Introduction

1. This appendix presents our analysis of the prices of roofline products for the purpose of assessing the extent of product differentiation among roofline products.
2. Prices are estimated using the parties' sales volumes and values. In particular, we examine:
  - (a) customer-level data, using sales volumes (in tonnes) and the value of net sales to each Epwin or Latium customer (that is, invoice value to each customer less factors such as contract support, rebates and marketing support); and
  - (b) brand-level data, using sales volumes (in tonnes) and the value of net sales of individual Epwin brands.
3. We do not estimate prices for individual products because:
  - (a) Contract support and rebates are recorded at the customer level, rather than the product level. Therefore any product-level analysis could not provide a reliable estimate of final prices paid by customers.
  - (b) In a market where customers buy a bundle of products—generally one soffit board will be bought alongside one fascia—prices of individual products may vary across companies even when the final price of the bundle is the same. This reduces the usefulness of individual product prices.
4. We note that because our analysis is confined to data from the parties, evidence showing similar prices between Epwin and Latium could be consistent with a situation in which the product itself was differentiated and the parties were close competitors. However, this issue is mitigated by the fact that we examine evidence on whether there are price differences between Epwin's individual brands, as well as whether there are price differences between Epwin and Latium.

### Analysis

#### ***Customer-level data***

5. In the context of customer-level data, there are two possible approaches to estimating a price for Epwin's and Latium's products:
  - (a) calculating net sales value per kg for each customer, and then calculating an average of these values—we term this the *average* approach; and
  - (b) summing net sales value and kg bought for each customer and dividing total net sales value by total tonnes—we term this the *ratio* approach.
6. The difference between these two approaches is that the former treats equally each customer's net sales value per kg, irrespective of the amount that they bought, whereas the latter takes the amount bought into account. Since our model treats each sale as a separate bargain between a customer and a manufacturer, the former approach may be more appropriate.

7. However, the average approach is also sensitive to outliers, as one customer buying a small amount of products at, say, a high price could result in an estimate which is not representative of the typical bundle of roofline products. [X]<sup>1</sup>
8. In general, as can be seen in Figure 1, price estimates using average net sales value per kg are in excess of those using the ratio of total net sales value to total tonnes. This is to be expected if large customers have buyer power, as sales to them are given more weight when using the ratio approach. [X]

FIGURE 1

**Average net sales value per kg (average) and ratio of net sales value to total kg, 2009 to 2011**

[X]

*Source:* Data from the parties and CC calculations.

9. It is plausible that negotiated prices vary across customer types. With respect to sales to the contract/specification sector, these are likely to occur on the basis of prices negotiated with end-users, with contract support offered to stockists as intermediaries, whereas sales to the trade side of the market are likely to occur on the basis of negotiations between the stockist and manufacturer. Although we do not have data on which of the parties' sales were for the contract/specification sector and which for the trade sector, we can roughly approximate this division by examining the sales of those customers that received contract support, acknowledging that sales to customers that received contract support will likely include some sales destined for the trade sector as well as sales to the contract/specification sector.
10. Figure 2 shows average net sales value per kg for the parties for customers in receipt of contract support and for other customers. Epwin's and Kestrel's average net sales per kg for [X], in the region of £[X] per kg. For other sales, there is a more significant difference between the values for Epwin and Kestrel, ranging from £[X] to £[X] per kg.

FIGURE 2

**Average net sales value per kg for Epwin and Kestrel, 2009 to 2011**

[X]

*Source:* Data from the parties and CC calculations.

11. This can be seen more clearly in Figure 3, which shows the difference between Epwin's and Kestrel's average net sales per kg for customers receiving contract support and other customers.

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<sup>1</sup> This is [X]. For the ratio approach, whether or not customers purchasing less than £[X] worth of products in a year are included does not make a material difference to estimated prices – the difference between the two estimates in each case is less than one penny in all cases.

FIGURE 3

**Difference in average net sales value per kg  
for Epwin and Kestrel, 2009 to 2011**

[REDACTED]

Source: Data from the parties and CC calculations.

12. However, such a pattern is not seen when taking into account the ratio of total net sales and total tonnes for these customer groups, which are shown in Figure 4. Although Epwin's ratio of total net sales to total kg for contract support customers remains approximately £[REDACTED] per kg, the equivalent figure for Kestrel is £[REDACTED] per kg. Closer analysis shows that the reason for this discrepancy is that Kestrel's net sales value per kg to [REDACTED].

FIGURE 4

**Ratio of total net sales to total kg for Epwin and Kestrel, 2009 to 2011**

[REDACTED]

Source: Data from the parties and CC calculations.

13. Evidence therefore suggests that there are modest differences in prices paid between Epwin and Kestrel products.

**Brand-level data**

14. The parties submitted data on their sales values and volumes broken down by brand. On first inspection, this data appears to show [REDACTED]. Figure 5 shows the invoice value per kg of Epwin's brands for the period 2008 to 2011. Whereas brands other than Swish appear to achieve invoice values of around £[REDACTED] to £[REDACTED] per kg, Swish achieves values consistently in the region of £[REDACTED] per kg.

FIGURE 5

**Invoice value per kg for Epwin brands, 2008 to 2011**

[REDACTED]

Source: Data from the parties and CC calculations.

15. However, invoice values do not take into account rebates to customers and contract support received by stockists, which will reduce the amount that Epwin receives per kg relative to the invoice value. In particular, as Epwin generally uses the Swish brand for the contract/specification market, contract support will be attached disproportionately to this brand, and consequently invoice value per kg will overstate the amount that Epwin actually receives for Swish-branded products.
16. As shown in Figure 6, once contract support and rebates are taken into account, the figures for Swish are much more closely aligned with those of the other brands, in the region of £[REDACTED] per kg. Also apparent is that invoice value per tonne for [REDACTED], at £[REDACTED] to £[REDACTED] per kg, is consistently below that of other brands, none of which are below £[REDACTED] per kg. This is explained by the particular mix of [REDACTED] products, with this brand having more [REDACTED] than Epwin's other brands.

FIGURE 6

**Invoice value per kg for Epwin brands adjusted for contract support and rebates, 2008 to 2011**



*Source:* Data from the parties and CC calculations.

17. Evidence therefore suggests that there are modest differences in prices paid between Epwin's brands.

**Summary of analysis**

18. In general, there are modest differences in the end price per kg paid by Epwin and Latium customers, and between different Epwin brands. It is unclear to what extent these variations can be attributed to product differentiation as there are a number of reasons why prices could vary across homogeneous products in a bilateral bargaining framework. These include:
  - (a) Differences in customer profile. Where there are differences in the customers that purchase particular brands from particular companies, outside options and therefore negotiated prices may vary. For example, larger customers could threaten to switch suppliers and have a larger effect on the producer's revenue.
  - (b) Differences in the product mix bought by customers: for example, if one company's or one brand's customers tended to buy more hollow soffit, this would reduce the end price paid to that company or for that brand.
  - (c) Additional services offered by manufacturers: where manufacturers offer ancillary services and support to customers, this could increase the price paid for particular manufacturers' roofline products or for particular brands.

## Spare capacity: methodology and findings

### Introduction

1. It is difficult to measure precisely the level of spare PVC-extrusion capacity available for extrusion of PVC roofline products. Although in the short run capacity can be thought of as constant, in the longer run capacity can be adjusted. In this appendix we attempt to quantify the level of spare capacity currently available in the market for the supply of PVC roofline products and window-trim products within the UK.
2. In this appendix we focus on spare capacity defined as the difference between the maximum amount of roofline products that could be produced with current manufacturing set-up and the actual production. Our goal is to provide a plausible estimate of the amount of spare capacity in the market as a whole, and for individual market participants.
3. In estimating spare capacity, we did not include swing capacity, ie the maximum amount of additional roofline products that could be produced by current manufacturers reallocating spare extrusion capacity from other PVC building products, such as rainwater pipes, to producing roofline products. This is because we consider that spare capacity is likely to be more readily available (as its use only requires running production lines longer or more efficiently) and thus provides the most significant competitive constraint to producers of roofline products and window trims. The same reasoning applies to an expansion in capacity, for example through investing in new extrusion lines. As long as it is available, spare capacity is therefore more likely to be deployed before swing capacity or capacity expansion. The following analysis therefore focuses on the availability of spare capacity, and the further constraint imposed by swing capacity and expansion capacity is considered separately in Section 8 of the report.

### Assessment of spare capacity

#### *Evidence from the parties*

4. Epwin submitted detailed economic analysis of the relevance of spare capacity and the ability of competitors to increase supply. Because neither Epwin nor Latium possess any information on their competitors' spare capacity, their analysis of the level of spare capacity in the roofline market relied on the D&G's estimate of industry capacity utilization, which is the only publicly available source of total industry spare capacity. Specifically, D&G estimated that the level of capacity utilization in the market was currently 40 per cent, implying 60 per cent spare capacity. The parties further submitted to us amended analysis of industry capacity in which they estimated industry spare capacity at 43 per cent.<sup>1</sup> Epwin also submitted that its effective capacity utilization for lines currently used for cellular extrusion was between [redacted] and [redacted] per cent.

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<sup>1</sup> The difference between estimates of D&G (60 per cent) and parties' (43 per cent) results from the parties taking into account their own spare capacity limitations.

## Evidence from third parties

5. We asked manufacturers to provide estimates of their spare capacity for the production of PVC roofline products. In particular, we asked manufacturers what was the maximum amount of roofline products they could produce with their current manufacturing set-up. Table 1 summarizes manufacturers' responses. Since some manufacturers split their spare capacity estimates across products, to aid comparability we also provide weighted averages of manufacturers' capacity utilization across their products, with weights determined by the products' turnover, with the exception of Epwin, which provided a product breakdown in tonnes.

TABLE 1 PVC manufacturers' estimates of spare capacity in PVC roofline products production

Company	<i>per cent</i>					
	<i>PVC fascias</i>	<i>PVC soffits (cellular)</i>	<i>PVC soffits (rigid/hollow)</i>	<i>PVC cladding</i>	<i>PVC window trims</i>	<i>Weighted average spare capacity</i>
Swish Building Products	[X]	[X]	[X]	[X]	[X]	[X]
Latium Building Products			[X]			[X]
Freefoam Plastics	[X]	[X]	[X]	[X]	[X]	[X]
Eurocell			[X]			[X]
Cork Plastics			[X]			[X]
Homeline Plastics			[X]			[X]
Kalsi Plastics	[X]	[X]	[X]	[X]	[X]	[X]
Anglian						
MFP			[X]			[X]
LB Plastics	[X]	[X]	[X]	[X]	[X]	[X]
Eagley Plastics	[X]	[X]	[X]	[X]	[X]	[X]

Source: Responses to market questionnaire.

Note: Some manufacturers provided a single spare capacity estimate for all roofline products, while others provided individual estimates for each product group. The table reflects these differences in responses. We have not received responses on utilization rates from Anglian.

6. Manufacturers' estimates of their own spare capacity are inconsistent with D&G's estimate of industry spare capacity at 60 per cent. For example, only one (small) manufacturer estimated its spare capacity for one product at 60 per cent, and all other manufacturers (including the four largest) estimated their spare capacity to be less. In fact, most of the entries in the table, including those for the largest manufacturers, are between 20 and 30 per cent, suggesting that industry spare capacity belongs somewhere in this range.
7. The difference between D&G's estimate and manufacturers' estimates is explained by D&G's estimate being of maximum theoretical capacity, whereas manufacturers routinely make some allowance for downtime, tool changes, etc to assess their maximum attainable output.<sup>2</sup> Maximum theoretical output and maximum attainable output can differ for a number of reasons:
- The technical state of some extrusion machinery is poor, which leads to more frequent downtime for repair and maintenance, substantially reducing the maximum attainable capacity.
  - Even if the extruder itself is in the best technical condition, its extrusion capacity can be limited by other factors such as the age and efficiency of the cooling systems of the downstream, the efficiency and speed of take-off rollers (requiring the product to be extruded at a slower pace), levels of scrap, variations in formulation, and flexibility of tooling.

<sup>2</sup> The only allowance D&G makes is for Christmas and bank holidays, reflecting in a 46.4-week working year.

- (c) For a given speed of extrusion, theoretical capacity is proportional to the surface area of the cross-section of the tool and therefore limited according to the product being extruded. Because manufacturers need to produce a whole portfolio of roofline products, some with very small cross-sections, product mix can further reduce the maximum attainable capacity of an extruder.
8. Given the inconsistency of manufacturers' estimates of their spare capacity and D&G's estimate, and since it is maximum attainable output that is relevant for our analysis, we have attempted to estimate more accurately the level of spare capacity in the industry, and its distribution among manufacturers. In addition, we used two alternative methods to verify the robustness of our estimates.

### ***Firm-level spare capacity estimates***

9. As our preferred method of spare capacity estimation, we applied manufacturers' own estimates of their spare capacity to their 2011 output (as stated in response to questions from the CC) to obtain individual estimates of spare capacity for each manufacturer.<sup>3</sup> Freefoam, Kalsi and MFP did not respond to our questions on their 2011 output, so in the absence of more recent figures we have used their 2010 output as stated in the 2011 D&G report. Eurocell provided figures for volumes purchased from its vertically-integrated manufacturer, and therefore excluding production to be sold through independent stockists. Cork Plastics' (FloPlast) roofline output was inferred from statements it made about the proportion of its total production represented by roofline.<sup>4</sup> The merging parties' own calculations on their spare capacity use figures of [X] tonnes for Epwin and [X] tonnes for Latium.
10. Because some manufacturers split their estimates of spare capacity across different roofline products, while others combined their estimates across their roofline product range, we used companies' weighted average spare capacities from Table 1 to apply these to the estimates of total roofline output.<sup>5</sup> Estimates of spare capacities calculated on this basis are shown in Table 2.

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<sup>3</sup> We had to use D&G estimates rather than actual volumes because we do not have comparable sales volumes for all the manufacturers for 2011. We do, however, have robust sales values for all the manufacturers for 2011 and comparing market shares calculated based on these with market shares calculated by D&G based on volumes data for 2010 gives very similar results, indicating that sales volumes reported by D&G, unlike their capacity estimates, are reasonably good measures of manufacturers' output.

<sup>4</sup> Cork Plastics indicated that it produced 6,000 tonnes of rainwater and 4,000 tonnes of roofline products for the UK market in 2011, which represented some 64.5 per cent of its total business. This implies that total production is approximately 15,500 tonnes (10,000/64.5%), of which Cork Plastic informed us roofline products account for approximately one-third, or 5,200 tonnes.

<sup>5</sup> Alternative methods, such as using an unweighted average of capacity utilization, were available, but since different levels of spare capacity for different products product were reported only by Freefoam and by smaller manufacturers, and the differences in the utilization rates by product were not high, the results do not depend materially on the exact method of aggregating spare capacity used.

TABLE 2 **Manufacturer-level spare capacity estimates 2011 for roofline products**

<i>Company</i>	<i>Total output tonnes</i>	<i>Utilization rate %</i>	<i>Capacity tonnes</i>	<i>Spare capacity tonnes</i>
Epwin	[x]	[x]	[x]	5,000
Latium	[x]	[x]	[x]	6,900
Eurocell	[x]*	[x]	[x]	2,800
Freefoam	[x]†	[x]	[x]	3,400
Homeline Plastics	[x]	[x]	[x]	1,500
Cork Plastics (FloPlast)	[x]‡	[x]	[x]	2,200
Eagley Plastics	[x]	[x]	[x]	1,300
Kalsi	[x]†	[x]	[x]	700
Anglia	[x]	[x]§	[x]	0
LB Plastics	[x]	[x]	[x]	800
MFP	[x]†	[x]	[x]	200
Total	[x]		[x]	24,700

Source: Responses to market questionnaires, CC analysis; D&G 2011 report.

\*Eurocell provided volumes going through its vertically-integrated stockists only.

†Indicates that the producer did not respond to our question on output, so output levels are taken from D&G's 2011 report.

‡Cork Plastics' total roofline output is inferred from statements about the total amount of its production accounted for by roofline products.

§Indicates a conservative assumption that the producer is at full capacity.

Note: Figures rounded to nearest hundred.

11. These estimates suggest total market spare capacity in the region of 25,000 tonnes, amounting to approximately 25 per cent of total capacity. This comprises approximately 12,000 tonnes of spare capacity attributable to the merging parties, and around 13,000 tonnes of spare capacity attributable to their competitors. According to this analysis, five of the parties' competitors have spare capacity in excess of 1,000 tonnes, with two having spare capacity greater than 2,500 tonnes.
12. We note that these estimates of spare capacity are conservative for the following reasons:
  - (a) Eurocell's output figures include only products purchased by their own, vertically-integrated stockist. Eurocell also owns the Deeplas brand of roofline products, production of which will not be included in these figures.
  - (b) Anglian did not respond to our questionnaire on spare capacity, indicating that although it had some spare capacity it could not quantify it. For the purposes of this analysis, they were assumed to be operating at full capacity. As their production still enters into total production, their inclusion reduces the estimated percentage of spare capacity (but not the absolute level).
  - (c) Some smaller manufacturers may not have been included in this analysis. To the extent that they have any spare capacity, their exclusion reduces our estimate of the absolute level of market spare capacity.
  - (d) Plastivan's roofline supply into the UK is within the relevant market, but is not taken into account in this analysis as we do not have data on either its production or spare capacity.
  - (e) Some manufacturers indicated that they did not operate continuously. For example, Kalsi indicated that it operated on the basis of a five-day week, while Anglian said that it did not operate a night shift. We did not explicitly take this into account, which could inflate the capacity utilization rates we use in the analysis, because other manufacturers, such as Epwin, operate on the basis of three shifts, seven days a week.

## Alternative methodologies

13. We attempted to verify our estimates using two alternative methodologies:
- (a) The first combines estimates of the average attainable output per extruder with the number of extruders in the industry to estimate total capacity, and then compares this with actual output.
  - (b) The second compares current output per extruder with the historical maximum output per extruder.
14. A severe limitation of these approaches is that they only allow estimation of the overall rate of spare capacity, rather than individual rates for each manufacturer, which limits its usefulness to the robustness check.<sup>6,7</sup> Moreover, because of data limitations on the number of extruders and output per extruder, we are only able to provide estimates for spare capacity for cellular foam profile in 2010.<sup>8</sup> This is in contrast to our preferred approach which estimates for spare capacity for cellular and rigid roofline products.
15. For the first methodology we quantified the average attainable output per extruder using two different sources. We combine these estimates with the total number of extruders in the industry as estimated by D&G:
- (a) In its profitability analysis submission Epwin assumed that an extrusion line could produce on average 693 tonnes a year.<sup>9</sup> Using 693 tonnes a year as the average maximum capacity of an extruder implies approximately 20 per cent spare capacity.<sup>10</sup>
  - (b) D&G reports that the maximum average throughput per extruder was reached in 2006 and was 657.7 tonnes a year. Epwin confirmed that it was running at [X], 657.7 tonnes a year could then also be considered a good proxy for the lower bound of maximum average throughput per extruder in PVC roofline application. Using 657.7 tonnes as the average maximum capacity per extruder and applying the D&G methodology results in a spare capacity estimate of approximately 20 per cent.<sup>11</sup> This calculation should be considered a lower bound to spare capacity to the extent that the industry, on average, was below full capacity in 2006. In other words, average output per extruder above 657.7 could be attainable.<sup>12</sup> For example, Eurocell's, Freefoam's and Cork Plastics' 2010 outputs per extruder were 750, 788 and 900 tonnes respectively.
16. For the second methodology, we use data from D&G on average throughput per extrusion line from 2000 to 2010. The peak average output per extruder was reached in 2006 and was 657.7 tonnes a year and subsequently dropped to 538.5 tonnes a year in 2010, indicating spare capacity of approximately 20 per cent.<sup>13</sup> Again, this calculation should be considered a lower bound to spare capacity to the extent that

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<sup>6</sup> Estimating individual utilization rates would require manufacturer-specific theoretical capacity per extruder. Using single average maximum capacity per extruder in the industry is equivalent to allocating industry spare capacity proportionally to the number of extruders each manufacturer operates.

<sup>7</sup> This approach is further limited by data availability which allows calculating utilization rate only for cellular products, ie without taking into account manufacturing of hollow soffit.

<sup>8</sup> D&G's *The 2011 Annual PVC Roofline Industry in the UK & Republic of Ireland*, p36, estimates cellular foam profile output at 69,950 tonnes in 2010 across 130 extruders.

<sup>9</sup> This is under the assumption of 24 hours a day, 7 days a week and 50 weeks per year, while D&G uses the assumption of 46.4 weeks per year.

<sup>10</sup>  $69,950 / (693 * 130) = 0.7764$ , rounded to 80 per cent capacity utilization.

<sup>11</sup>  $69,950 / (657.7 * 130 \text{ (industry extruders)}) = 0.8181$ , rounded to 80 per cent capacity utilization.

<sup>12</sup> If the industry did not operate at full capacity in the peak year 2006, the current utilization rate would be lower.

<sup>13</sup>  $538.5 / 657.7 = 0.8187$ , rounded to 80 per cent capacity utilization.

the industry, on average, was below full capacity in 2006, so that average output per extruder above 657.7 could be attainable.

17. These robustness checks therefore indicate a lower bound for spare capacity in the region of 20 per cent. We note that the numbers we use for maximum average output per extruder are significantly below maximum theoretical capacity. For example, in their calculation of industry capacity, D&G assume average output per extruder of 175kg/hour, giving each extruder an average output of 1,364 tonnes a year, based on machines operating continuously for 46.4 weeks a year. In fact, so long as maximum attainable output per extruder is at least 718 tonnes a year, a figure which is lower than the actual output per extruder per year of some market participants, industry spare capacity will be at least 25 per cent.
18. These robustness checks use very conservative assumptions and should therefore be considered as absolute lower bounds for industry spare capacity. As our preferred method also uses conservative assumptions and results in a reasonable point estimate of 25 per cent spare capacity, we regard this as compatible with the 20 per cent lower bound for spare capacity indicated by our robustness checks.

## **Summary**

19. In summary, we note that the amount of the spare capacity in this market is difficult to measure. Our preferred estimate is that spare capacity is, on conservative assumptions, approximately 25 per cent, equivalent to around 25,000 tonnes of spare capacity with approximately 12,000 tonnes of spare capacity attributable to the merging parties and 13,000 to their competitors. This estimate has been verified by other approaches.

## Geographic distribution of stockists

1. A number of submissions about this merger relate to Epwin's ownership of a network of stockists. In particular, some parties have suggested that the merger between manufacturers will enhance Epwin's ability to exercise market power at the retail level, by enabling it to threaten to withdraw product lines or brands from independent stockists.
2. To ascertain the likelihood of these adverse effects, we have examined the geographic distribution of PVC roofline stockists in the UK. In particular, we have mapped the locations of stockists for which we had data, using 10-mile radii around the centre of the stockists' postcodes.<sup>1</sup> The stockists are:
  - (a) Epwin's network of branches, shown in blue (vertically integrated);
  - (b) SIG's network of branches, shown in green (independent);
  - (c) Eurocell's network of stockists, shown in magenta (vertically integrated);
  - (d) GAP's network of stockists, shown in red (vertically integrated); and
  - (e) the independent stockists on Epwin's and Latium's customer lists, excluding SIG, shown in purple.
3. Although we are confident that our data is complete for SIG's, GAP's, Eurocell's and Epwin's networks, it is almost certain that there are independent stockists that are not on Epwin's or Latium's customer lists. The OFT estimated that there were 4,000 to 5,000 outlets stocking roofline products in the UK.<sup>2</sup>
4. As stockists' catchment areas overlap significantly, to aid the visual presentation of the geographic distribution of stockists, we present the same map of stockists and their catchment areas a number of times. We do so with the order in which the catchment areas are overlaid changed so that the relevant party's network of outlets is most clearly visible.
5. The distribution of Epwin's 43 owned stockists can be seen in Figure 1. Epwin's stockist network has been characterized by SIG as 'semi-national player', which is reflected in Epwin's lack of stockists in Scotland, Northern Ireland and the East of England. We note that each of Epwin's stores is within the catchment area of competing stockists.

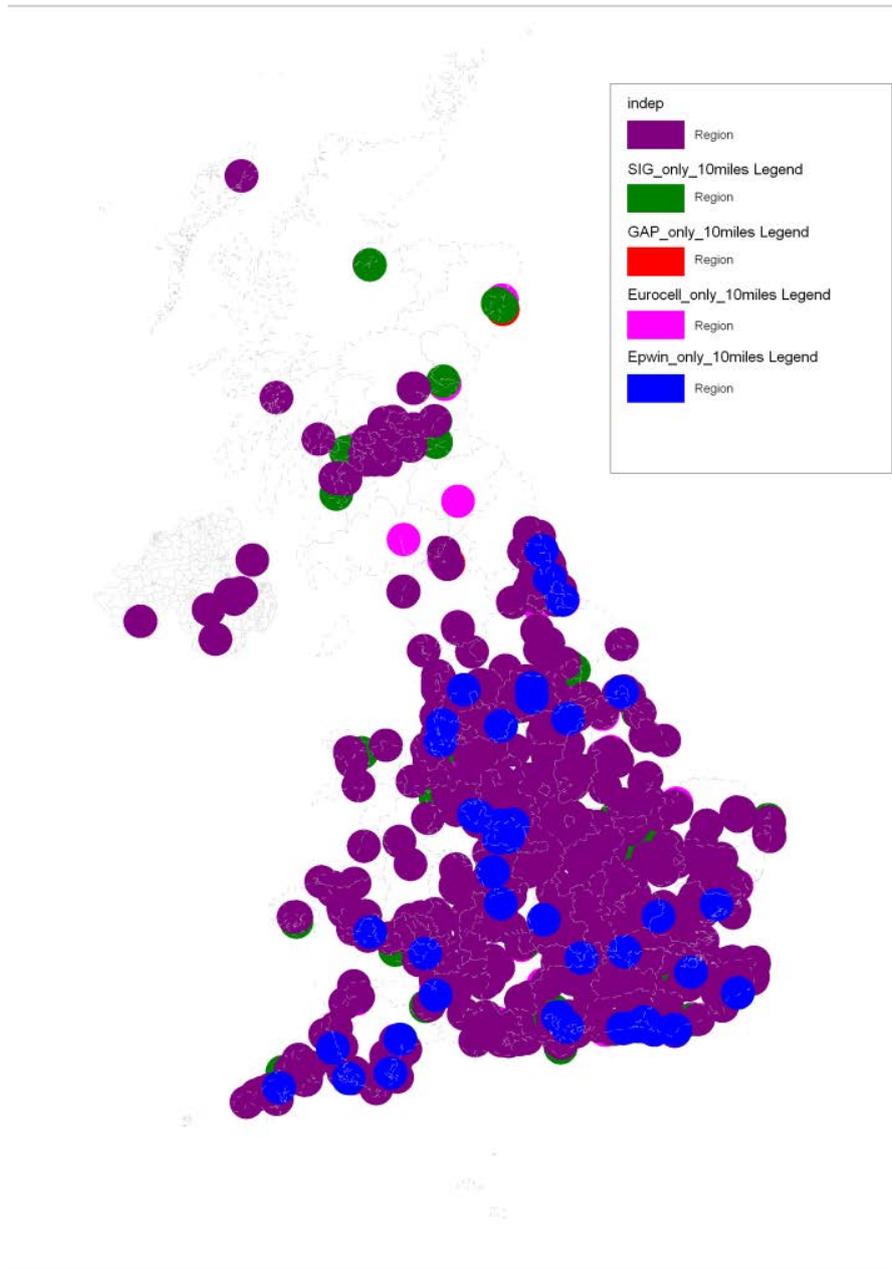
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<sup>1</sup> DGS stated that catchment areas for the trade market were 'no more than ten miles' (DGS hearing summary, p4).

<sup>2</sup> OFT Final Decision, paragraph 47, p14.

FIGURE 1

**Map of stockist locations, Epwin on top**

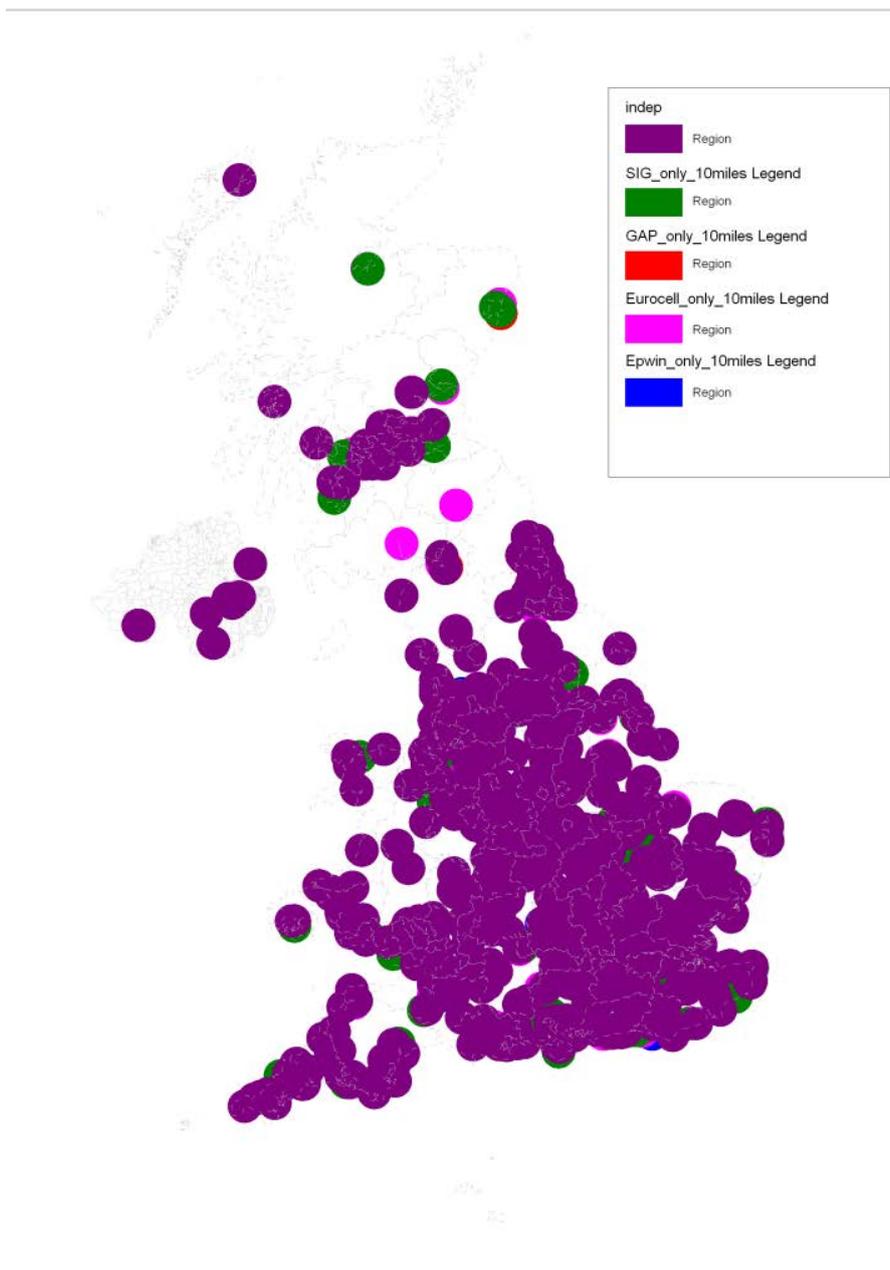


*Source:* Stockist addresses provided by the parties and third parties.

6. The latter point can be seen more clearly when independent (non-SIG) stockists are overlaid on top of the other networks (see Figure 2). Independent stockists provide almost complete national coverage.

FIGURE 2

Map of stockist locations, independents on top

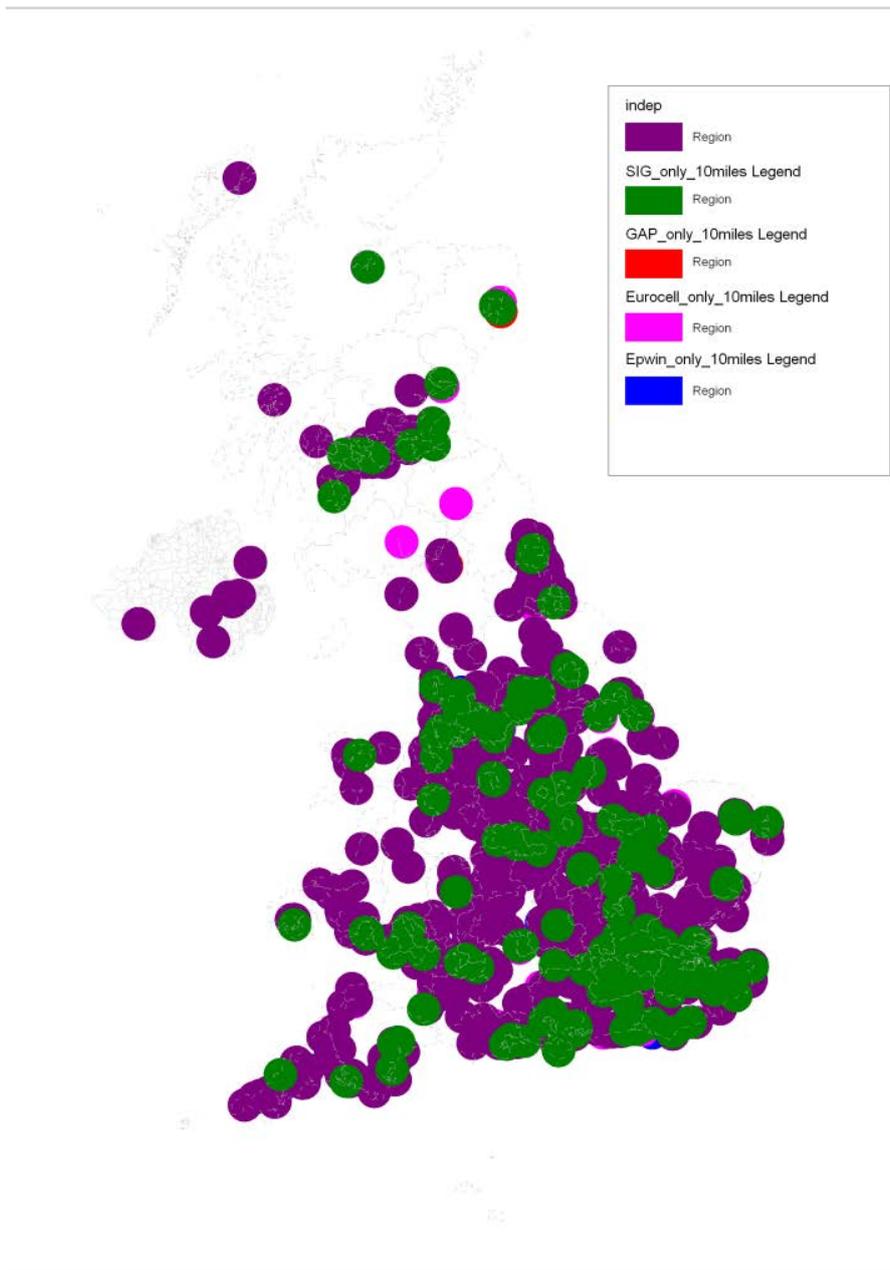


Source: Stockist addresses provided by the parties and third parties.

7. SIG has the largest network of independent (non-vertically integrated) stockists consisting of 177 stockists mapped and 12 more for which postcodes could not be matched automatically by the mapping software. It can be characterized as national in scope, and is more significant in both numbers and geographic distribution than Epwin. In fact, SIG has outlets in all of the regions in which Epwin has a stockist presence.

FIGURE 3

Map of stockist locations, SIG on top

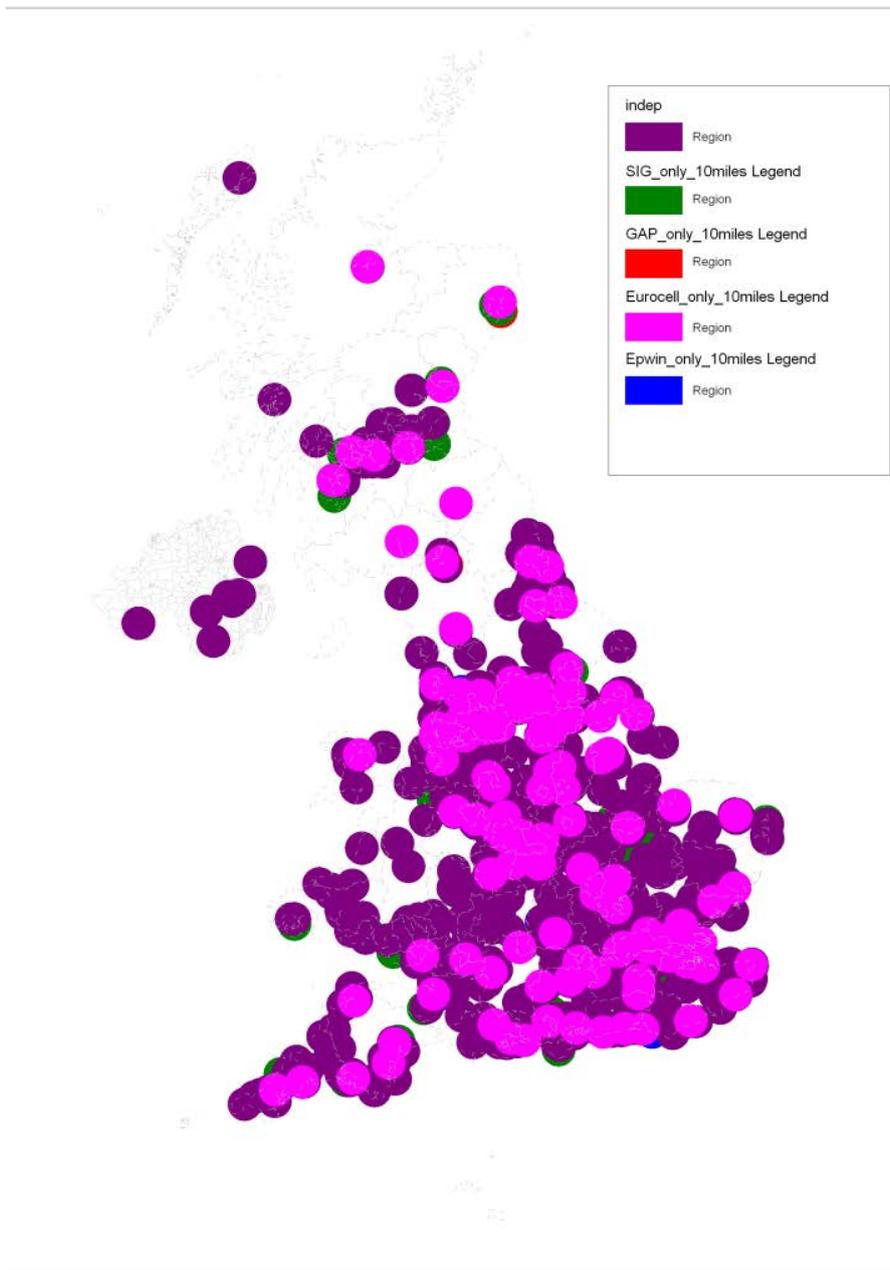


Source: Stockist addresses provided by the parties and third parties

8. Eurocell's network is comparable to SIG's, with 117 mapped outlets and five more that were unmatched (and not mapped) (see Figure 4). Again, Eurocell's network of stockists is more significant than Epwin's with respect to number and geographic distribution. Eurocell also has outlets in all of the regions in which Epwin has a presence.

FIGURE 4

Map of stockist locations, Eurocell on top

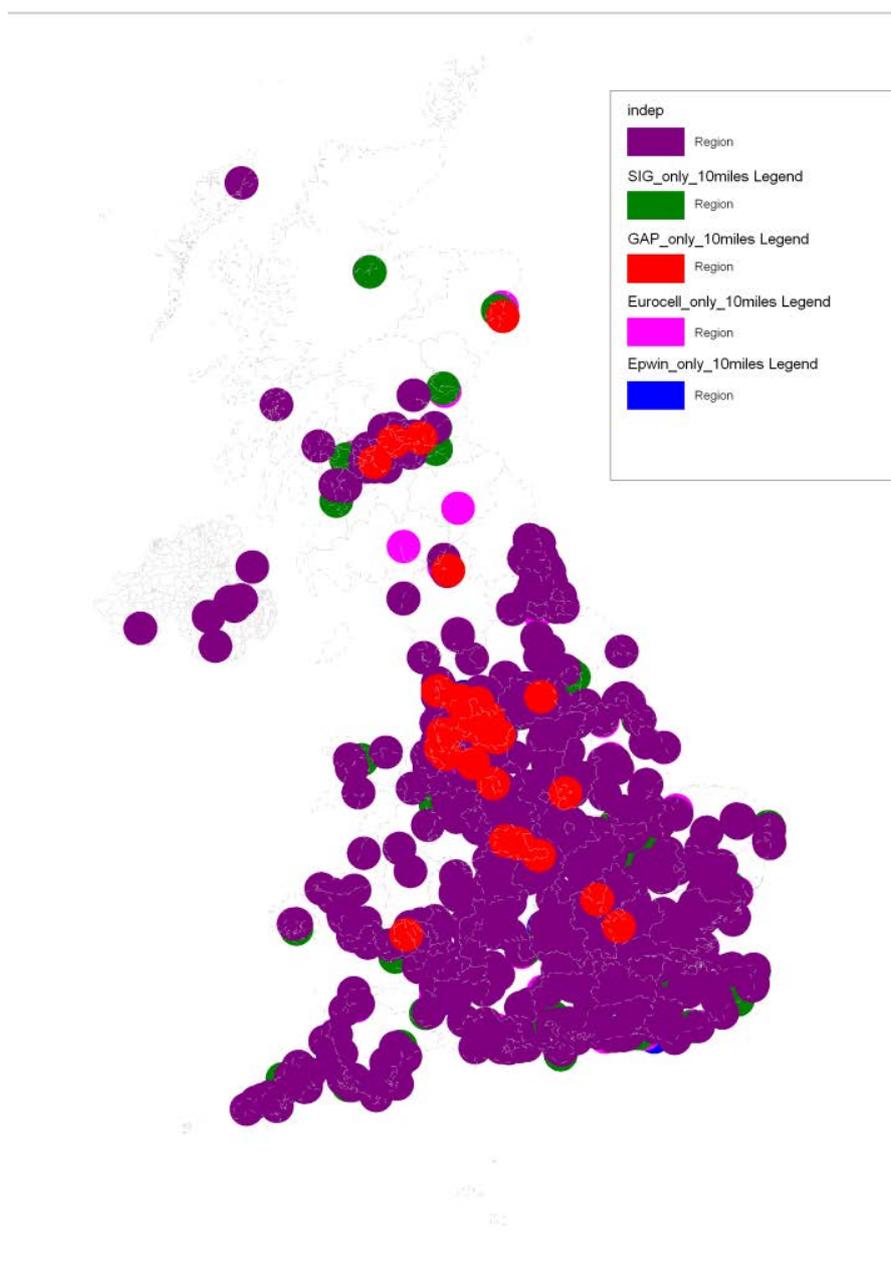


Source: Stockist addresses provided by the parties and third parties.

- 9. Homeline/GAP's distribution network consists of 27 outlets and is concentrated in the West of England, where some of Epwin's stockists are located, and the central belt of Scotland (see Figure 5).

FIGURE 5

Map of stockist locations, GAP on top



Source: Stockist addresses provided by the parties and third parties.

10. To summarize the above:
- (a) Epwin's network of stockists is semi-national, but is not as comprehensive in its coverage as SIG and Eurocell, nor is it as significant in the number of its stockists.
  - (b) All of Epwin's stockists are within the catchment area of independent, non-SIG stockists.
  - (c) All of Epwin's stockists are in regions in which SIG and Eurocell have stockists, while both GAP and Epwin have stockists in the West of England.

## Glossary

<b>Building Plastics</b>	Building Plastics Holdings Limited, one of the three holding companies acquired by <b>Epwin</b> in the merger.
<b>Cellular products</b>	<b>PVC</b> products that are produced using raw <b>PVC</b> that is mixed with a foaming agent, resulting in the finished product having a honey-comb structure that has similar properties to wood. Used interchangeably with <b>PVC-UE</b> .
<b>Celuform</b>	Celuform Building Products Limited. A subsidiary of <b>Latium</b> . For most practical purposes Celuform's business is subsumed within <b>Kestrel</b> . Celuform-branded products are extruded <b>PVC-U</b> and <b>PVC-UE roofline</b> , cladding and <b>window-trim</b> products.
<b>CET</b>	CET Glass Processors Holdings Limited, one of the three holding companies acquired by <b>Epwin</b> in the merger.
<b>Contract support</b>	Payments made by manufacturers to <b>stockists</b> making sales in the <b>specification</b> segment to ensure that the <b>stockists</b> achieve the agreed margin on these sales.
<b>Demand-side substitution</b>	The process by which consumers switch from purchasing one particular product to another. If products are perfectly substitutable, then a consumer can switch their consumption between them and be no worse off at the same price.
<b>Die</b>	The device used in the <b>PVC extrusion</b> process to shape extruded <b>PVC</b> profile.
<b>Epwin</b>	Epwin (Holdings) Limited, one of the merging companies.
<b>Extrusion</b>	See <b>PVC extrusion</b> .
<b>Fascias</b>	Flat boards that sit underneath the eaves of a house, fitted to the roof's overhang.
<b>Foil</b>	A decorative finish added to <b>PVC</b> products.
<b>HW Plastics</b>	HW Plastics Ltd. A non-trading subsidiary of <b>Building Plastics</b> .
<b>Hypothetical monopolist test</b>	A test used in market definition. The Merger Assessment Guidelines state that 'The Authorities will ensure that the relevant market they identify satisfies the hypothetical monopolist test' (5.2.1), but that 'The relevant market may not be the narrowest market that meets the ... test' (5.2.3). The Guidelines explain that 'A set of substitute products (a "candidate market") will satisfy the hypothetical monopolist test if a hypothetical firm that was the only present and future seller of the products in the candidate market would find it profitable to raise prices' (5.2.10). The benchmark here is a small but significant non-transitory increase in price—normally 5 per cent—for at least one product in the candidate market (5.2.11).

<b>Independent stockist</b>	A <b>stockist</b> that has no ownership ties with an upstream manufacturer. Independent stockists may be reluctant to buy <b>roofline products</b> from <b>vertically integrated manufacturers</b> .
<b>Indigo</b>	Indigo Products Limited. A subsidiary of <b>Latium</b> . Indigo is a window frame fabrication business, assembling both glazed and unglazed window and door frames for trade.
<b>Kestrel</b>	Kestrel-BCE Limited, a subsidiary of <b>Latium</b> . Manufactures and sells all of the extruded <b>PVC-U</b> and <b>PVC-UE roofline</b> , cladding and <b>window-trim</b> products. Included in Kestrel's output is the manufacturing and sales activity of <b>Celuforn</b> .
<b>Latium</b>	Latium Building Products Holdings Limited, one of the three holding companies acquired by <b>Epwin</b> in the merger. Prior to the merger, Latium owned <b>Kestrel</b> and <b>Celuforn</b> and acquired <b>Indigo</b> on the same day as the merger.
<b>Non-PVC roofline products</b>	<b>Roofline products</b> that are made of materials other than <b>PVC</b> . These are typically timber, but may be made of other materials such as metal or MDF (medium density fibreboard).
<b>OFT</b>	Office of Fair Trading.
<b>PVC</b>	Polyvinyl chloride, a plastic derived from petrochemicals.
<b>PVC cladding</b>	A decorative wall finish.
<b>PVC extrusion</b>	The production process for (inter alia) <b>PVC roofline</b> and rainwater products. The process involves melting raw <b>PVC</b> by traversing it under pressure by the action of heated rotary screws to produce a continuous profile of <b>PVC</b> , which is then shaped, cooled and cut to the required length.
<b>PVC roofline products</b>	These include a variety of <b>PVC</b> building products that are used around the roof of a house, and that may be used in place of similar products made of timber, including <b>soffit boards</b> , <b>fascias</b> and <b>PVC cladding</b> . They may be <b>hollow/rigid</b> or <b>cellular</b> in construction.
<b>PVC-U</b>	Unplasticized <b>PVC</b> . Products made of this are often called <b>rigid products</b> , and include twin wall hollow soffit.
<b>PVC-UE</b>	Unplasticized expanded <b>PVC</b> . Products made of this are often referred to as <b>cellular products</b> , and include <b>fascias</b> and cladding.
<b>Rebates</b>	Money paid by manufacturers to <b>stockists</b> , often in return for achieving particular sales volumes.
<b>Rigid products</b>	Products made of unplasticized <b>PVC</b> that have not had a foaming agent added early in the extrusion process, including rainwater products such as drainpipes. Often used interchangeably with <b>PVC-U</b> .

<b>Roofline products</b>	A variety of building products that are installed on and around the roof of a house. Roofline products include <b>soffit boards</b> , <b>fascias</b> and <b>PVC cladding</b> .
<b>Soffit boards</b>	Flat boards that sit underneath the eaves of a house, perpendicular to the wall.
<b>Spare capacity</b>	The difference between the maximum amount of products that could be produced with the existing manufacturing set-up and actual production.
<b>Specification segment</b>	The section of the market that comprises <b>roofline product</b> sales to large end-users that have agreements for the purchase of <b>roofline products</b> from manufacturers. These end-users include large national and regional house builders and companies refurbishing social housing stock.
<b>Stockists</b>	The stockists that the manufacturers sell to may be independent businesses, or may be part of the same vertically-integrated business. Stockists stock the products and range from specialist plastics stores to more general builders' merchants.
<b>Spectus</b>	Spectus Systems Limited, a subsidiary window systems manufacturer to <b>Building Plastics</b> .
<b>Supply-side substitution</b>	The process by which suppliers switch their production from one particular product to another. Where products are substitutable on the supply side, producers can easily change how they allocate their production between the products.
<b>Swing capacity</b>	The maximum amount of each product that could be produced if additional <b>PVC extrusion</b> capacity (of other <b>PVC</b> building products, eg rainwater pipes) was reallocated to producing <b>roofline products</b> .
<b>Swish</b>	A brand of <b>roofline products</b> , manufactured by <b>Swish Building Products</b> .
<b>Swish Building Products</b>	An <b>Epwin</b> business. It produces <b>roofline products</b> under a number of different brand names, including <b>Swish</b> , Concord, Summit and Plaslyne.
<b>Trade segment</b>	End-users who buy over the counter from <b>stockists</b> and who do not negotiate over price with manufacturers. End-users in this segment are generally smaller-scale installers of <b>roofline products</b> .
<b>Trentham</b>	Trentham Logistics Limited. A subsidiary logistics company to <b>Building Plastics</b> .
<b>Vertically-integrated manufacturer</b>	A manufacturer that has common ownership with a <b>stockist</b> .
<b>Vertically-integrated stockist</b>	<b>Stockists</b> that have common ownership with a manufacturer. The converse is the case for <b>vertically-integrated manufacturers</b> .
<b>Window trims</b>	Sections of <b>PVC</b> that surround installed windows.