



Aggregates, cement and ready-mix concrete market investigation

Cement customer switching

24 January 2013

NON-CONFIDENTIAL



Structure of the presentation

1. Summary of findings
2. Overview of the dataset and the matching process
3. Descriptive statistics of customer purchasing behaviour
 - Number of cement customers, and their size
 - Longevity and frequency of cement purchases
 - Multisourcing
4. Analysis of switching in cement
 - A comparison of levels of switching
 - Win and loss patterns over time
 - The relationship between switching and market shares
 - The relationship between switching and prices
5. Analysis of win/loss records submitted by the parties
6. Appendix: further results and robustness checks



1. Summary of findings



Context

Context

- The idea behind this analysis is to use the transaction data provided by the cement companies to improve our understanding of the characteristics of cement customers and their purchasing behaviour, and especially the extent to which they switch between suppliers.
- This will inform our assessment of the coordination theory of harm, and in particular our understanding of the mechanism via which any coordination might be taking place.
- We cannot use information on customer behaviour to directly test whether or not coordination is present in the cement market. Rather, the intention is that this analysis will shed some light on the existence of certain customer attributes which may be more or less conducive to coordination, or consistent only with certain types of coordination or punishment mechanisms.

Caveats

- Our analysis might not necessarily capture cement customer switching fully
 - Our data includes bulk cement only (delivered sales), thus it does not include bagged cement or collected sales
 - We have data for three cement importers only, thus we are not able to capture switching from/to all the other importers



Our approach

- We have used the parties' transaction data in order to construct a comprehensive dataset at the customer and jobsite level with details on how and where customers and jobsites source cement from
- Using this dataset we looked first at general descriptive evidence on customer and jobsite characteristics and purchasing behaviour and general levels of switching across time and suppliers
- We examined patterns in
 - switching over time and across suppliers
 - the relationship between switching and market shares
 - the relationship between switching and prices
- We also analysed data on cement customer win and loss records submitted to us by [✂], [✂] and [✂]



Summary (1)

- Our analysis of cement customer behaviour has shown the following:
 - The customer base is quite concentrated (both in terms of number and size of customers)
 - We observe multisourcing at the customer level but not at the jobsite level
 - Most customers purchase cement monthly (or more frequently)
 - Demand for cement seems to be long term in that most customers appear in our data for the full period for which we have data (ie, 2007 to 2011)
- Our estimates of the level of switching in the market indicate the following:
 - All external customer (including majors) wins amounted to around [X] to [X] per cent relative to total sales volumes for the Top 3 cement suppliers ([X], ([X], ([X]) and to around [X] to [X] per cent of annual sales volumes for the non-major importers ([X], [X], [X]) in the period from 2008 to 2010
 - Wins of independent customers amounted to around [X] to [X] per cent relative to total sales volumes for the Top 3 cement suppliers and to around [X] to [X] per cent for the importers
- 2008 and 2009 stand out as years with relatively high levels of switching, reflecting the [X] internalisation of purchases from [X] and all the switching of cross-sales and independent customers that followed
 - Some further internalisations occurred also in end 2010/beginning of 2011, although on a much smaller scale



Summary (2)

- Importers' wins are mainly from the Top 3 cement suppliers ([✂]), while the Top 3 are both losing customers to the importers and winning customers from them – this is consistent with an increase in importers' market share over time
- Our analysis of annualised data does not reveal any obvious patterns in the switching among the Top 3 suppliers, such as matching of wins and losses
- However, we observe evidence consistent with tit-for-tat behaviour among the Top 3 suppliers and, to some extent, [✂] and [✂] when we look at correlations of monthly wins and losses between suppliers
- There is no consistent pattern in how switching is greater or smaller than one might expect based on market shares
- [✂] of customers that switch achieve lower prices
 - [✂]
 - [✂]
- Switching in 2007 and 2008 did not achieve price reductions on average, but switching from 2009 onwards resulted in customers paying lower prices after switching
- There seems to be a peak in the price dispersion in periods where the switching activity is higher (e.g. Q1 2009)



2. Data and methodology



Data

- Data
 - Our raw data source is the transaction data provided by the four domestic cement producers (Lafarge, Cemex, Hanson and Tarmac) and four cement importers (AI, [REDACTED], [REDACTED] and [REDACTED]) in relation to bulk cement only.
 - The datasets include internal and external transactions. They record the price and volume of the cement sales made by each company in every period and the name and address details of each respective customer.
 - For the majority of suppliers we have monthly transaction data covering the period 2007 to 2011. However, we are missing some transaction data. [REDACTED]. Lastly, we do not have any transaction-level information for other importers so our analysis will not capture any switching events from or to these suppliers.



Matching methodology (1)

- Matching of the datasets

- We prepared a consolidated dataset at the customer level in order to calculate total cement purchases of each customer and identify switching events.
- A key challenge with this exercise is to match customer records across the different datasets provided by the parties – i.e. identify instances where the same customer appears in different suppliers' datasets.
- This has been achieved in two steps:
 - First, we have standardised customer names across companies
 - Second, we have used these standardised customer names and details of the customer delivery address to link together records from different datasets that relate to the same customer



Matching methodology (2)

■ Step 1

- In order to standardise the customer names across the cement suppliers' datasets we used a number of different techniques. Specifically, we:
 - Reviewed an alphabetical list of all customers, looking for alternate spellings of the same customer name;
 - Reviewed information provided by [✂] on the wider group to which each customer in their database belongs;
 - Reviewed customers located close to other customers with similar names, checking for alternate spellings;
 - Reviewed any additional customer details contained in the transactions datasets;
 - Tidied any instances where customer names were recorded in different formats



Matching methodology (3)

- Step 2
 - In order to group customer delivery sites together, we began by searching for all instances in any of the suppliers' datasets where customers with the same name were located within a short distance of each other. We used a tolerance of 2.5 miles in order to allow for some variation in how the location of each customer had been geo-coded by each supplier. In order to avoid different delivery sites being erroneously labelled as the same entity, we manually reviewed all groupings containing more than one customer record in a single supplier's database.
 - A small number of observations were missing geographic information. For these customers we used any delivery details that had been provided in order to attempt to match these to any jobsites existing in our database (if such jobsites existed).
- As a final step, internal transactions were added to the database. For these customers there was no requirement to standardise names; these delivery addresses were assigned to groupings using the same method as for external customers.



Matching methodology (4)

- Caveats on our data/ methodology
 - Using a matched database of this type raises a number of difficulties. In particular, our dataset may be incomplete to the extent that:
 - Some customer names remain unmatched
 - There are errors in how transactions have been recorded or geocoded by the cement companies
 - There are transactions missing from the suppliers' databases
 - Some jobsites are wrongly matched/ unmatched
 - A failure to match customers and/or jobsites will likely introduce systematic error in our analysis – i.e. it will reduce the number of switching events that we observe.



Switching definition (1)

- Some discretion is required in order to define customer wins and losses, because purchasing and switching patterns differ across customers. Switching events can vary with respect to:
 - Completeness – i.e. does the winner capture all of the customer’s demand?
 - Longevity – i.e. is the win observed in the period permanent or does the customer switch again at a later stage?
 - Immediacy – i.e. is the win observed in the period immediately after the rival stops supplying, or does it come several periods later?
- In our analysis we focus on switches with the following characteristics:
 - The supply periods before and after the event are 3 months or more
 - One implication of this is that we do not include the first 3 months of 2007 and the last 3 months of 2011 in our analysis
 - The supply periods before and after the event do not have to be continuous but we allow for gaps that last up to 2 months (i.e. we also allow for ‘patchy’ switches)
 - The switches involved 25% or more of the jobsite’s demand – this means we are able to capture also partial switches (e.g. instances where a customer keeps sourcing some cement from its existing supplier when it switches)



Switching definition (2)

- Thus, it is likely that we underestimate the number of switching events since due to the definition and the data in hand we will not observe:
 - Switches to importers not included in our dataset
 - Switches to collected (as opposed to delivered) cement
 - Short switches (that last less than 3 months)
- In the appendix, we describe the checks we conducted in order to test the sensitivity of our results to alternative (less strict) switching definitions
 - We ‘relax’ our criteria for identifying wins and loss – we identify as switches more of the short-term switches (e.g. switches for less than 3 months) and more ‘patchy’ switches
 - With this criteria, we identify about 18% more wins and losses than before, although this varies slightly across suppliers. In terms of value, we identify at most 13% more switching – again, this varies across suppliers.
 - We also cross-checked our switching data with the switching data submitted by the Top 3 GB cement producers. We found that our data match to a large extent to the parties’ data on wins/ losses (around 72% overlap). [✂]



3. Cement customer purchasing behaviour



Number and size of cement customers (1)

There are several ways in which the number and size of cement customers could affect suppliers' ability to coordinate. For example:

- The greater the number of cement customers, the less likely is coordination based around the allocation of specific customers;
- If customers are larger, this will imply that transactions will be lumpier – with implications for firms' incentive to deviate, and their ability to monitor and punish any deviation by their rivals.



Number and size of cement customers (2)

- In total for the period 2007 to 2011, we have identified a total of 900 buyers of delivered bulk cement, and a total of 3,859 delivery sites.
- In any given year, there are approximately 600 cement customers active in GB, and approximately 2,000 delivery sites. Around 45 per cent of cement delivery sites are owned by the five majors.
- 605 customers have only a single jobsite, 44 customers have ten or more sites

Supplier	Average number of customers supplied in a year	Average number of jobsites per customer
Lafarge	[✂]	[✂]
Hanson	[✂]	[✂]
Cemex	[✂]	[✂]
Tarmac	[✂]	[✂]
Importer X	[✂]	[✂]
Importer Y	[✂]	[✂]
Importer Z	[✂]	[✂]
AI	[✂]	[✂]



Number and size of cement customers (3): [✂]

- [✂] twenty largest customers in terms of share of total cement volumes over the entire period 2007 to 2011 (including internal sales) are shown in the table below
 - Top 20 accounted for around 80 per cent of total sales volumes in 2007 to 2011

Rank	Customer	Total purchases (Kt)	Share (%)	Rank	Customer	Total purchases (Kt)	Share (%)
1	[✂]	[✂]	[✂]	11	[✂]	[✂]	[✂]
2	[✂]	[✂]	[✂]	12	[✂]	[✂]	[✂]
3	[✂]	[✂]	[✂]	13	[✂]	[✂]	[✂]
4	[✂]	[✂]	[✂]	14	[✂]	[✂]	[✂]
5	[✂]	[✂]	[✂]	15	[✂]	[✂]	[✂]
6	[✂]	[✂]	[✂]	16	[✂]	[✂]	[✂]
7	[✂]	[✂]	[✂]	17	[✂]	[✂]	[✂]
8	[✂]	[✂]	[✂]	18	[✂]	[✂]	[✂]
9	[✂]	[✂]	[✂]	19	[✂]	[✂]	[✂]
10	[✂]	[✂]	[✂]	20	[✂]	[✂]	[✂]



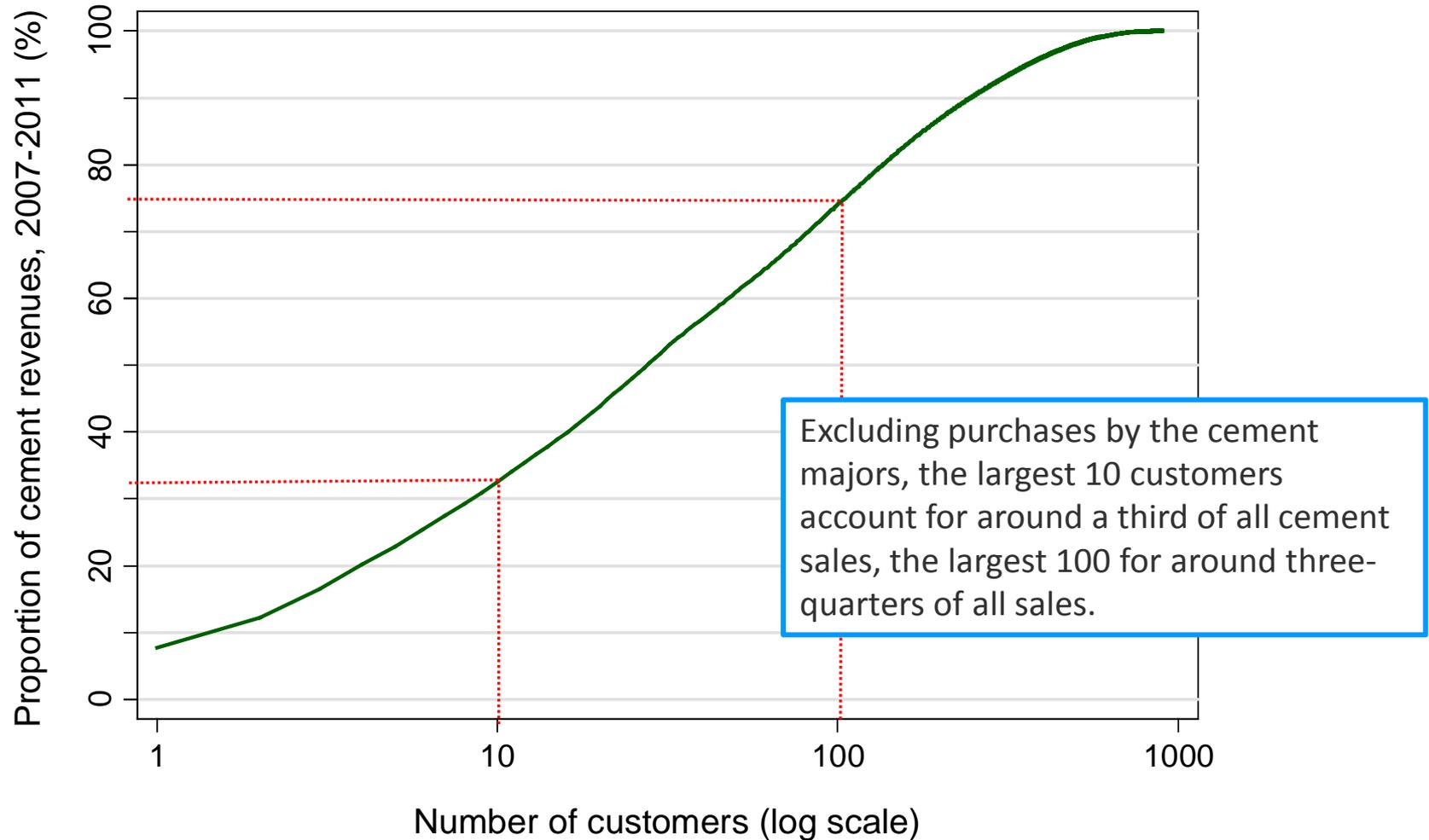
Number and size of cement customers (4): All GB

The cement majors accounted for around 60% of all cement purchases in the period 2007 to 2011 (delivered bulk cement, including internal sales). It is useful to divide customers into the following categories based on their annual sales in kilotonnes.

Category	Number of customers	Total purchases (Kt)	Share of all purchases (%)
Cement major	5	[✂]	60.7
Big (20Kt plus per year)	50	[✂]	24.1
Medium (5Kt to 20Kt per year)	151	[✂]	10.0
Small (less than 5Kt per year)	695	[✂]	5.2



Number and size of cement customers (5)





Customer longevity and frequency (1)

The length of cement customer relationships may impact on the likelihood of successful coordination. Specifically, we would expect longer term relationships to facilitate coordination - if demand is short-term or one-off, then this will introduce instability into the market, putting pressure on suppliers' market shares.

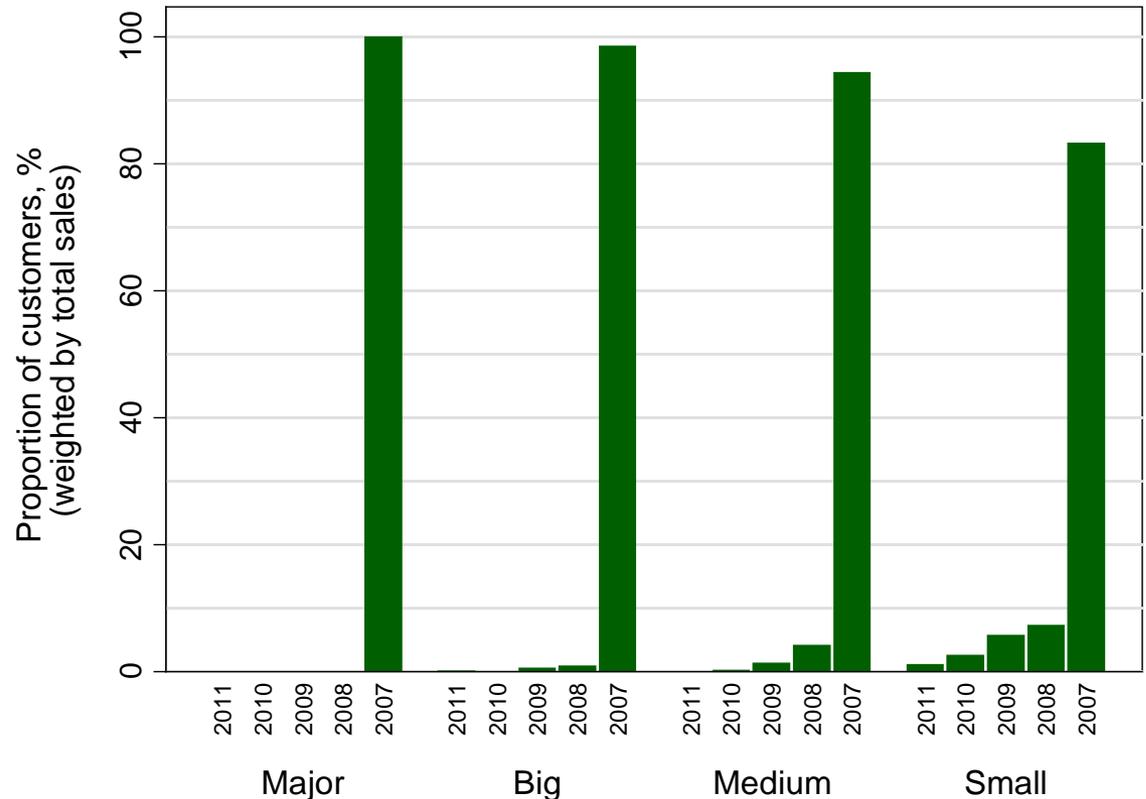
The frequency of purchase may also have implications for suppliers' ability to coordinate, to the extent that it determines the lumpiness of demand, thus affecting the speed with which suppliers are able to detect deviation and their incentives to deviate themselves.



Customer longevity and frequency (2)

To assess longevity, we take all customers active in December 2011 and look at the year in which sales are first observed for those customers (irrespective of whether they or their sites switched suppliers or multisourced).

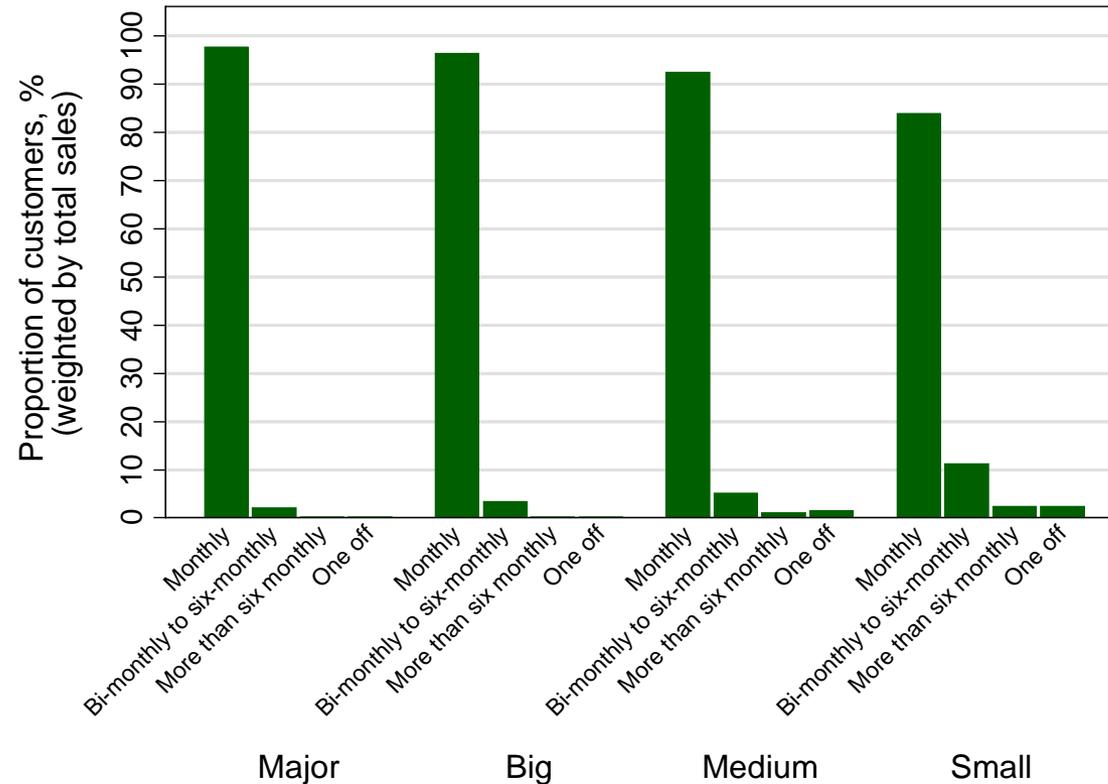
Across all customer categories, the vast majority of cement customers have been purchasing cement since 2007: demand is long term.





Customer longevity and frequency (3)

- We examined frequency of purchases of individual job-sites. We found that, across all sizes of customer, the vast majority of cement is purchased monthly (or more frequently).
 - But some of the smaller customers purchase cement more infrequently than the larger customers





Multisourcing and coordination

We would expect multi-sourcing (ie the purchasing of cement from different suppliers) to make it more difficult to coordinate.

A customer that purchases from more than one supplier will be better informed about prices, and so may be able to play competitors off against one another in negotiations.

In addition, if a customer is simultaneously sourcing from more than one supplier for the same jobsite, then this would make any coordination around specific customers much harder to monitor.



Multisourcing over time

- Most customers (over 90%) have sourced cement from at least two suppliers in the period between 2007 and 2011
- A large proportion of jobsites (c.60%) have purchased cement from at least 2 suppliers in the period from 2007 to 2011
 - This could be due to (simultaneous) multisourcing, or due to switching

Number of suppliers, 2007 to 2011	Number of jobsites	Proportion of sales (%)	Number of customers	Proportion of sales (%)
1	2,742	41.3	517	7.2
2	863	39.9	246	11.3
3	225	15.9	105	18.9
4	27	2.8	26	22.2
5	2	0.1	5	15.6
6	0	0.0	0	0.0
7	0	0.0	2	24.8
TOTAL	3,859		901	



Simultaneous multisourcing

- Most jobsites (representing 82% of volumes) do not simultaneously source from more than one supplier, although a non-trivial proportion do
- On the other hand, almost all of the largest customers purchased cement from more than one supplier at the same time between 2007 and 2011 (likely to supply their different jobsites)

Simultaneous sourcing?	Number of jobsites	Proportion of sales (%)	Number of customers	Proportion of sales (%)
Source from only one supplier at any one time	3,618	82.0	763	15.0
Source simultaneously from more than one supplier, but for <u>less</u> than half of the period 2007 – 2011	185	11.7	90	5.3
Source simultaneously from more than one supplier for <u>more</u> than half of the period 2007 – 2011	56	6.3	48	79.8



4. Analysis of switching



Switching and coordination

- Customer switching is likely to affect feasibility of coordination in the market for cement
 - Low levels of customer switching could be consistent with coordination - but it could also be explained in a competitive model if, for example, customers have no reason to switch because they are already paying the market price, or buyers rely on the mere threat of switching in order to negotiate better prices.
 - High levels of customer switching would suggest that any coordination based around the allocation of specific customers is not working very well. More generally, high levels of switching could generate instability in market shares, making it more difficult for firms to reach a coordinated equilibrium.
 - Switching events may also be associated with suppliers undercutting each others' prices in order to win customers, which is likely to indicate that any coordination might not be working well
- Switching among suppliers could be used as a punishment mechanism if there was coordination
 - For example, “tit-for-tat” strategies could be used to help sustain the coordinated outcome and re-establish market shares



Measuring switching (1)

- We examined customer switching at a jobsite level
- We used the value of wins (or losses) as a measure of switching in the market – this is a better measure than the number of events as it accounts for the different sizes of customers
- For monthly analysis, we calculated the ‘value’ of the switch as average monthly purchase volume of the customer after the switch (or – for loss event – before the loss)
- For annual analysis, we defined the ‘value’ of the switch as an estimated annual purchases (in tonnes) by the customer
 - We multiplied the estimated monthly volume switched by 12 in order to estimate the annualised ‘value’ of the switch
 - The ‘value’ of the switch is attributed to the year in which the month of the switch falls
 - This approach could lead to an overestimation of the extent of switching, since a non-negligible proportion of switches in our data last less than 12 months (see slide on the length of switches) and since some switches are ‘patchy’
- For both monthly and annual analysis, we examined value of wins (or losses) relative to winning (or losing) supplier’s total (external and internal) sales volume of cement over the relevant period
 - This accounts for different sizes of suppliers as well as for varying volumes of sales over time
 - For reference, we show total sales volumes used as the denominator in the Appendix
 - We observed a similar pattern of wins and losses over time and across suppliers when we used absolute values of wins and losses



Measuring switching (2)

- We examined switching of all external customers, and for independent customers and other majors (i.e., cross-sales) separately in some instances
 - Switches by other majors include internalisation events
 - The value of the switch is attributed to the year in which the month of the switch falls
- In a number of instances we focussed on switching for the three largest GB cement producers ('Top 3') – [✂]
- How does switching compare between them and the importers?
- Are there any patterns in switching among the Top 3 indicative of tit-for-tat strategies?
- We measured switching over the following time periods and frequencies:
 - Monthly switching from April 2007 to September 2011
 - Annual switching from 2007 to 2011 (although we do not capture all the switching in 2007 and 2011)
 - Overall switching in the period from 2008 to 2010 – this is in order to exclude years for which we do not have full data on switching



Average monthly levels of switching: wins

- [✂]
- [✂]

Company	Average job-site wins per month		Average customer wins per month		Wins as a proportion of total sales volume (%)	
	All external	Excluding majors	All external	Excluding majors	All external	Excluding majors
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]



Average monthly levels of switching: losses

- Average monthly losses tend to be higher than average monthly wins for the Top 3, but it is the other way round for importers (except [✂]), which on average have more wins than losses (this is consistent with an increasing market share of importers over time)

Company	Average job-site losses per month		Average customer losses per month		Losses as a proportion of total sales volume (%)	
	All external	Excluding majors	All external	Excluding majors	All external	Excluding majors
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]



Length of switches

- Switches are in general long term, although a non-negligible proportion of switches appear to last less than one year

	Supply periods after a win	Supply periods before a loss
Average number of months	20	18
% of switches lasting <6 months	22%	22%
% of switches lasting <12 months	40%	37%

- If we exclude 2011 for wins and 2007 for losses we get a more accurate picture on the length of switches lasting less than a year
- Around one third of switches in our data last less than a year, although average length of switches is nearly two years

	Supply periods after a win	Supply periods before a loss
Average number of months	22	20
% of switches lasting <6 months	20%	22%
% of switches lasting <12 months	33%	41%



Total number of win events

- Wins of *all external* customers (majors and independents) from 2007 to 2011

Win from:	Winner:								TOTAL
	Lafarge	Hanson	Cemex	Tarmac	AI	Importer X	Importer Y	Importer Z	
Lafarge	-	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	-	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	-	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	-	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	-	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	-	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	-	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	-	[✂]
All wins	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]

- Wins of *independent* customers from 2007 to 2011

Win from:	Winner:								TOTAL
	Lafarge	Hanson	Cemex	Tarmac	AI	Importer X	Importer Y	Importer Z	
Lafarge	-	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	-	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	-	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	-	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	-	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	-	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	-	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	-	[✂]
All wins	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]



Total number of loss events

- Losses of *all external* customers (majors and independents) from 2007 to 2011

Switch to:	Loss by:								
	Lafarge	Hanson	Cemex	Tarmac	AI	Importer X	Importer Y	Importer Z	TOTAL
Lafarge	-	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	-	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	-	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	-	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	-	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	-	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	-	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	-	[✂]
All losses	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]

- Losses of *independent* customers from 2007 to 2011

Switch to:	Loss by:								
	Lafarge	Hanson	Cemex	Tarmac	AI	Importer X	Importer Y	Importer Z	TOTAL
Lafarge	-	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	-	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	-	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	-	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	-	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	-	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	-	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	-	[✂]
All losses	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]



Overall levels of switching (1) – volumes won

- Wins of *all external* customers (majors and independents) from 2008 to 2010, as a proportion of total cement sales volumes (external and internal)
 - [✂]

(%)	Winner:							
Win from:	Lafarge	Hanson	Cemex	Tarmac	AI	Importer X	Importer Y	Importer Z
Lafarge	–	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	–	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	–	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	–	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	–	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	–	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	–	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	–
All wins	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]



Overall levels of switching (2) – volumes won

- Wins of *independent* customers from 2008 to 2010, as a proportion of total cement sales volumes (external and internal)
 - [✂]

(%)	Winner:							
Win from:	Lafarge	Hanson	Cemex	Tarmac	AI	Importer X	Importer Y	Importer Z
Lafarge	–	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	–	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	–	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	–	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	–	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	–	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	–	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	–
All wins	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]



Overall levels of switching (3) – volumes lost

- Losses of *all external* customers (majors and independents) from 2008 to 2010, as a proportion of total cement sales volumes (external and internal)
 - [✂]
 - [✂]

(%)	Loss by:							
Switch to:	Lafarge	Hanson	Cemex	Tarmac	AI	Importer X	Importer Y	Importer Z
Lafarge	-	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	-	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	-	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	-	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	-	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	-	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	-	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	-
All losses	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]



Overall levels of switching (4) – volumes lost

- Losses of *independent* customers from 2008 to 2010, as a proportion of total cement sales volumes (external and internal)
 - [✂]
 - [✂]

(%)	Loss by:							
Switch to:	Lafarge	Hanson	Cemex	Tarmac	AI	Importer X	Importer Y	Importer Z
Lafarge	–	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	–	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	–	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	–	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	–	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	–	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	–	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	–
All losses	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]



Monthly wins and losses– [✂] (1)

- Monthly wins and losses of all external customers, as a proportion of total monthly sales volumes
 - [✂]

[✂]



Monthly wins and losses – [✂] (2)

- Monthly wins and losses of all external customers – excluding [✂]
 - [✂]
 - [✂]

[✂]



Monthly wins and losses - [✂]

- [✂] monthly wins and losses of all external customers
 - [✂]
 - [✂]

[✂]



Monthly wins and losses – [✂]

- [✂] monthly wins and losses of all external customers
 - [✂]

[✂]



Monthly wins and losses - [✂]

- [✂] monthly wins and losses of all external customers





Annual switching patterns

- The following slides show annual wins of the different suppliers
- 2008 and 2009 stand out as years with relatively high levels of switching, largely due to [✂] internalisation of purchases from [✂] and all the switching of cross-sales and independent customers that followed
- Wins of independent customers account for less than [✂]% of the Top 3's sales (except for 2009), and for generally higher levels (in the region of [✂] to [✂]) of the non-major importer's sales
- Losses are higher than wins mainly due to internalisation of cement purchases (because they show up as losses but not as wins of external customers in our data)
- Importers' wins are mainly from the Top 3, which is consistent both with the Top 3 being the largest suppliers and with importers' terminals being located in different parts of GB
- The Top 3 are losing customers to the importers, but they also are winning customers from the importers – [✂]



Overall levels of switching by year (1)

- Losses of *all external* customers (majors and independents), as a proportion of total sales volume (%)
- 2008 and 2009 stand out as years with comparatively very high losses of customers
 - [✂]
 - [✂]

Losses by:	2007	2008	2009	2010	2011	2008 - 2010	2007 - 2011
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
ALL	4.7	20.9	17.0	5.6	5.1	15.0	11.2



Overall levels of switching by year (2)

- Losses of *independent* customers , as a proportion of total sales volume (%)
- 2009 was a year with relatively high losses of independent customers
- [✂]
- [✂]

Losses by:	2007	2008	2009	2010	2011	2008 - 2010	2007 - 2011
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
ALL	1.2	3.4	6.7	2.4	2.8	4.1	3.3



Overall levels of switching by year (3)

- Wins of *all external* customers (majors and independents), as a proportion of total sales volume (%)
- We observe wins by the Top 3 in 2009 being at least double of what they were in 2007 – 2008, and wins then fall back to relatively low levels in 2011
- Note that losses of external customers include losses due to internalisation but they will not show up as wins
 - [✂]

Winner:	2007	2008	2009	2010	2011	2008 - 2010	2007 -2011
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
ALL	4.1	6.6	13.7	5.8	4.3	8.5	6.9



Overall levels of switching by year (4)

- Wins of *independent* customers, as a proportion of total sales volume (%)
- Overall, importers appear to get [✂] wins of independent customers than the Top 3 or [✂] or [✂] (in terms of volume won as a proportion of total sales volume)
- Wins of independent customers by [✂] and [✂] more than tripled in 2009 if compared to 2008

Wins by:	2007	2008	2009	2010	2011	2008 - 2010	2007 - 2011
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
ALL	1.4	3.2	6.6	2.7	2.9	4.0	3.3



Overall levels of switching by year (5)

- Wins of *majors* (Lafarge, Hanson, Cemex, Tarmac, AI), as a proportion of total sales volume (%)
- There is no switching of majors to importers
 - except [✂]
- [✂]

Wins by:	2007	2008	2009	2010	2011	2008 - 2010	2007 - 2011
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
ALL	2.7	3.4	7.2	3.1	1.4	4.4	3.6



Overall levels of switching by year (6)

- Internalisations by the 5 majors (wins of own sites)

Volume (Kt)

Wins by:	2007	2008	2009	2010	2011	2008 - 2010	2007 -2011
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
ALL	91	394	741	139	128	1,275	1,494

Volume as a proportion of total sales volume (%)

Wins by:	2007	2008	2009	2010	2011	2008 - 2010	2007 -2011
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
ALL	1.3	4.7	11.7	2.1	2.3	6.0	4.4



Switching: wins from the Top 3

- Wins of independent customers from the Top 3 ([✂]), as a proportion of total sales volume (%)
- [✂]

Wins by:	2007	2008	2009	2010	2011	2008 - 2010	2007 - 2011
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
ALL	1.0	2.7	5.7	2.0	1.5	3.4	2.6



Switching: wins from Tarmac and importers

- Wins of independent customers from Tarmac and importers, as a proportion of total sales volume (%)

Wins by:	2007	2008	2009	2010	2011	2008 - 2010	2007 -2011
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
ALL	0.4	0.5	1.0	0.9	1.4	0.8	0.8



Patterns of switching among the Top 3

- We examined patterns of switching over time between cement suppliers in order to see whether there are any systematic patterns indicative of tit-for-tat strategies
- With respect to switches between the Top 3 (see charts on the next three slides), we do not observe a systematic pattern of matching wins and losses between two suppliers when examining annual data
 - However, for each year we may need to look at wins and losses also in the previous and subsequent years – this is because wins at the end of one year may be related to losses in the next year. An example of this is [✂] internalisation, which appears as a loss in [✂] data in December 2008, but any subsequent wins from [✂] are recorded in year 2009. Similar issues may apply to 2010/2011, where [✂], [✂] and [✂] internalised some volumes at the end of 2010.
 - An earlier table (slide 37) showing overall 2008 to 2011 switching volumes among suppliers did not highlight symmetry in wins either.
- However, we observe evidence consistent with tit-for-tat behaviour among the Top 3 suppliers and, to some extent, [✂] and [✂] when we look at correlations of monthly wins and losses between suppliers.



Wins and losses of the Top 3 - [✂]

- [✂] wins and losses of all external customers from/to other suppliers

[✂]



Wins and losses of the Top 3 - [✂]

- [✂] wins and losses of all external customers from/to other suppliers

[✂]



Wins and losses of the Top 3 - [✂]

- [✂] wins and losses of all external customers from/to other suppliers

[✂]



Correlation of wins and losses (1)

- If wins and losses between any two suppliers are positively correlated, this could be indicative of tit-for-tat behaviour
 - Eg, supplier A wins a customer from supplier B, and then loses a customer to supplier B as supplier B targets A's customers
 - (Note: in the results tables, supplier A is shown in the first column and supplier B appears in column headings)
- We calculated correlation coefficients of cement suppliers' monthly wins and losses in order to see whether there is any evidence of tit-for-tat
 - Tit-for-tat could be contemporaneous (eg, in the same month), or there could be a lag (eg, A wins from B in month T-1, and A loses to B next month, at T). Ex ante, it is not possible to know with certainty how instantaneous we can expect the reaction to be, therefore we calculated also correlations between current losses and *lagged wins*, and examined the contemporaneous and the lagged win/loss correlation results as a whole.
 - Note that correlation coefficients for a given pair of suppliers do not have to be symmetric for there to be evidence consistent with tit-for-tat behaviour. This is because of the way we have measured wins and losses. In particular, internalisation by A from B will appear as B's loss in our data but not as A's win (since we focus on all external customers only).
 - Lags and sequence of wins and losses would be another reason why we would not necessarily expect symmetry in correlation coefficients.



Correlation of wins and losses (2)

- Our results are consistent with tit-for-tat behaviour particularly among the Top 3 GB cement producers ([✂]), and, to some extent, involving [✂] and [✂]
 - Taken together, contemporaneous and/or 1 month lag correlation coefficients are positive and in some cases relatively large (in the range from 0.08 to 0.69) for:
 - [✂]
 - [✂]
 - [✂]
 - [✂]
 - [✂]
 - [✂].
 - On the other hand, contemporaneous and/or 1 month lag correlations of wins and losses between importers and the majors are always small and negative (bar one instance of a small positive coefficient), indicating that wins and losses are not strongly correlated. This is consistent with lack of relatively instantaneous tit-for-tat between the importers and the majors (but we do see some instances of positive correlations when examining wins and losses at longer lags). Negative coefficients could be consistent with competition as higher wins are associated with lower losses (eg, this could be due to competitive pricing to win/retain customers).



Correlation of wins and losses (3)

- Correlation between wins at T and losses at T (contemporaneous correlation)

	Wins from/losses to:							
Wins/losses of:	Lafarge	Hanson	Cemex	Tarmac	AI	Importer X	Importer Y	Importer Z
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]

- Correlation between wins at T-1 and losses at T (1 month lag)

	Wins from/losses to:							
Wins/losses of:	Lafarge	Hanson	Cemex	Tarmac	AI	Importer X	Importer Y	Importer Z
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]



Switching and market shares (1)

- We compared overall levels of switching between the suppliers to their market shares
- Switching patterns indicate diversion
 - Diversion from A to B: of all the wins from supplier A, what proportion was won by supplier B
 - We examined total switching between 2008 and 2010
- Residual market shares indicative of expected diversion ratios under certain assumptions
 - Residual share takes out the supplier in question (i.e., the one from which the diversion is measured) from market share calculations, and calculates shares among all the other suppliers
 - Market shares measured in terms of sales volume (in tonnes) to external customers (i.e., excludes internal sales) of delivered bulk cement (2008 to 2010 total to be comparable to our figures of overall switching patterns)
 - Compare each cell of the residual market share table with the respective cell in the switching tables to understand whether diversion is in line with market shares
- We find that, although switching (diversion) is not always in line with the market shares, there is no consistent pattern to this



Switching and market shares (2)

- Residual market shares (%) for comparing to switching (each rows adds up to 100%)
 - Market share calculated in terms of external sales, 2008-2010 average

	Residual market shares of:							
Diversion from:	Lafarge	Hanson	Cemex	Tarmac	AI	Importer X	Importer Y	Importer Z
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]



Switching and market shares (3)

- Switching of all external customers (diversion ratios, %)
 - Diversion from A to B: of all the wins from supplier A (in first column), what proportion was won by supplier B (in column headings)
 - Each row adds up to 100%, and estimates based on fewer than 5 switching events are marked with an asterisk *

	Diversion to:							
Diversion from:	Lafarge	Hanson	Cemex	Tarmac	AI	Importer X	Importer Y	Importer Z
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]



Switching and market shares (4)

- Switching of independent customers (diversion ratios, %)

Diversion from:	Diversion to:							
	Lafarge	Hanson	Cemex	Tarmac	AI	Importer X	Importer Y	Importer Z
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]

- Switching of majors (diversion ratios, %)

Diversion from:	Diversion to:				
	Lafarge	Hanson	Cemex	Tarmac	AI
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	[✂]

Note: estimates based on fewer than 5 switching events are marked with an asterisk *. Results on switching of majors from/to importers are not shown for brevity.



Switching and prices (1)

- The majors have told us that switching/threat of switching is used by customers to achieve better prices. Therefore we examined the relationship between switching and prices with the following questions in mind:
 - Do customers that switch achieve lower prices?
 - Are there any differences by type of customer (independents vs majors) and/or type of supplier (Top 3 vs [✂]/importers)?
- We looked at average prices changes of customers (job-sites) that switched
 - We focussed on ‘win’ events, and, for each customer, we looked at change in average price paid before and after the switch (we used 3-month averages)
- The results show that [✂] of customers that switch achieve lower prices when they switch and that the average reduction in prices in prices is around [✂]% (or [✂] £ per tonne)
 - [✂]
 - [✂]
- Switching in 2007 and 2008 did not achieve price reductions on average, but switching from 2009 onwards resulted in customers paying lower prices when they switched



Prices and switching (2)

- Across all suppliers, on average [✂] of all external customers who switch pay lower prices after the switch, and the average reduction in prices is around [✂]% (or [✂] £ per tonne)
- [✂]
- [✂]

Wins to:	Prop. of switches with lower prices (%)	Average price change (%)	Average price change (£/tonne)
Lafarge	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]
TOTAL	[✂]	[✂]	[✂]



Price and switching (3)

- [✂]
- [✂]
- [✂]
- [✂]

	Independent customers			Major customers		
Wins to:	Prop. of switches with lower prices (%)	Average price change (%)	Average price change (£/tonne)	Prop. of switches with lower prices (%)	Average price change (%)	Average price change (£/tonne)
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
TOTAL	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]



Price and switching (4)

- Table below shows average % price changes for *all external customer switches*, by pairs of suppliers involved in the switching event

– [✂]

	Winner:							
Win from:	Lafarge	Hanson	Cemex	Tarmac	AI	Importer X	Importer Y	Importer Z
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]



Price and switching (5)

- Tables below shows average % price changes for *independents'* switches and *majors'* switches
- [✂]

Independents' switches

	Winner:							
Win from:	Lafarge	Hanson	Cemex	Tarmac	AI	Importer X	Importer Y	Importer Z
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]

Majors' switches

	Winner:			
Win from:	Lafarge	Hanson	Cemex	Tarmac
Lafarge	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]

Note: tables do not show results based on fewer than 5 switching events.



Price and switching (6)

- Table below shows average % price changes following switches, by supplier and year

Independents' switches

Switches to:	2007	2008	2009	2010	2011
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]
ALL	[✂]	[✂]	[✂]	[✂]	[✂]

- [✂]

- [✂]

Majors' switches

Switches to:	2007	2008	2009	2010	2011
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]
ALL	[✂]	[✂]	[✂]	[✂]	[✂]

- [✂]

Note: tables do not show results based on fewer than 5 switching events.



5. Analysis of win/loss records submitted by the parties



Parties' win/loss records

- Some parties have submitted to us, as part of their response to the Market Questionnaire (MQ), their own win/loss records.
- [✂].
- [✂].
- We used the parties' win/loss records to calculate total volumes won and lost each year and what percentage of these volumes was won/lost from/to each of the other competitors. We focused only on bulk cement.



Parties' win/loss records analysis (1)

- The results from this analysis are shown in the next slides. Based on the parties' own win and loss records we see the following:
- [✂]
- [✂]



Parties' win/loss records analysis (2)

- [✂]
- [✂]



Parties' win/loss records analysis (3)

- [✂]
- [✂]
- Our analysis of [✂], [✂] and [✂] win and loss data also provides an indication of diversion to other GB importers for which we don't have transaction data (e.g. [✂], [✂] etc.).



[✂] wins in win/loss records

- Tables below show [✂] wins based on [✂] win and loss records

[✂]

[✂]



[✂] losses in win/loss records

- Tables below show [✂] losses based on [✂] win and loss records

[✂]

[✂]



[✂] wins in win/loss records

- Tables below show [✂] wins based on [✂] win and loss records

[✂]

[✂]



[✂] losses in win/loss records

- Tables below show [✂] losses based on [✂] win and loss records

[✂]

[✂]



[✂] wins in win/loss records

- Tables below show [✂] wins based on [✂] win and loss records [✂]

[✂]

[✂]



Comparison to our switching data (1)

- We calculated wins and losses of [✂], [✂] and [✂] based on the customer switching dataset that we had created (results shown on the next slides), and compared them to the results from our analysis of parties' win/loss records presented in the previous slides
- However, we would not necessarily expect the numbers (either absolute or relative splits) to be the same for the following reasons
 - Parties' win/loss records may be incomplete or erroneous
 - Parties have not provided an explanation of how they measure volumes won/lost, and their definitions of volumes won/lost could well be different to our definition (we measure win/loss as an estimated annual sales volume won/lost). There might also be differences in the definition of wins and losses
 - Parties attempt to record wins/losses to all the importers in GB, whereas we have data only on three importers ([✂], [✂], [✂]), so our analysis will not capture switches to importers other than the three in our data
- Indeed when we compare the previous tables to the tables that follow, we observe differences between the numbers provided by the parties and the numbers we get from our dataset (both absolute and relative splits). Nevertheless, we can compare the trends that come out from the two datasets.



Comparison to our switching data (2)

- When we compare the parties' win and loss data with our data we observe the following:
- [✂]
- [✂]



Comparison to our switching data (3)

- [✂]
- Overall, we can say that the parties' win/loss records and our switching data do not give the same switching volumes either in absolute values or percentages. This is probably due to the reasons we mentioned earlier. However, from both datasets we can get similar patterns. When we compare the relative switching across competitors between the two datasets we see that the two datasets pick up similar trends in the switching behaviour of [✂], [✂] and [✂].



[✂] wins in our dataset

- Tables below show estimated wins in our switching data for comparison with [✂] win and loss records ('the 3 importers' refers to the three importers which we have data for, i.e. [✂], [✂], [✂])





[✂] losses in our dataset

- Tables below show estimated losses in our switching data for comparison with [✂] win and loss records





[✂] wins in our dataset

- Tables below show estimated wins in our switching data for comparison with [✂] win and loss records





[✂] losses in our dataset

- Tables below show estimated losses in our switching data for comparison with [✂] win and loss records





[✂] wins in our dataset

- Tables below show estimated wins in our switching data for comparison with [✂] win and loss records





[✂] losses in our dataset

- Tables below show estimated losses in our switching data for comparison with [✂] win and loss records





6. Appendix



Total sales volumes

- Table below shows total (external + internal) sales volumes of delivered bulk cement for each supplier in our data; we have used these figures in our calculations of relative wins/losses volumes

(Kt)	2007	2008	2009	2010	2011	2008 - 2010	2007 - 2011
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
ALL	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]

Further results:

Overall levels of switching (1) – volumes won



- Wins of *all external* customers (majors and independents) from 2008 to 2010, absolute levels (Kt)
 - Wins relative to total sales volumes are shown on slide 37

	Winner:							
Win from:	Lafarge	Hanson	Cemex	Tarmac	AI	Importer X	Importer Y	Importer Z
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
All wins	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]

Further results:

Overall levels of switching (2) – volumes lost



- Losses of *all external* customers (majors and independents) from 2008 to 2010, absolute levels (Kt)
 - Losses relative to total sales volumes are shown on slide 39

Switch to:	Loss by:							
	Lafarge	Hanson	Cemex	Tarmac	AI	Importer X	Importer Y	Importer Z
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
All losses	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]

Sensitivity analysis:

Additional wins/losses identified (1)



- We carried out a sensitivity analysis with respect to our approach to identifying wins and losses in the matched transaction data
 - The original criteria requires at least 3 months of supply before and after the event – we reduced this to 2 months
 - In the original criteria, periods of supply before and after the event were allowed to have gaps of up to 2 months – we increased this to 3 months
 - Thus we ‘relax’ our criteria for identifying wins and loss – we identify as switches more of the short-term switches (e.g. switches for less than 3 months) and more ‘patchy’ switches
- Table on the next slide summarises the increase in the number of win/loss events identified, and an estimate of additional win/loss value (in terms of volumes) identified
 - The value of additional switches identified is likely to be an overestimation, because the additional wins/losses we identify are short-term and/or patchy therefore annual estimated value of the customer is likely to be overstated (as we multiplied the average monthly volumes by 12 to arrive at the estimates of annualised values of switches)
- We identify about 18% more wins and losses than before, although this varies slightly across suppliers. In terms of value, we identify at most 13% more switching – again, this varies across suppliers. This indicates that the additional switches we identify are likely to be smaller than the ones we identified using our original criteria.

Sensitivity analysis: Additional wins/losses identified (2)



Win from:	Value of the additional wins/losses identified				Number of additional events identified			
	Wins (Kt)	Wins (%)	Losses (Kt)	Losses (%)	Wins (Kt)	Wins (%)	Losses (Kt)	Losses (%)
Lafarge	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Cemex	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Tarmac	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
AI	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer X	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Y	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Importer Z	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
TOTAL	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]

Switching definition: cross checking with parties' win/loss data (1)



- We used the parties' win/loss records submitted to us as part of the MQ (analysed in the earlier slides) to cross-check our data. We examined whether the switching events identified by our collated dataset match those recorded by the parties.
- For the cross-checks, we selected one year of data from each supplier. [✂]
- In as far as possible, we considered only switches of delivered bulk cement customers in order to ensure comparability to our dataset
- [✂]

Switching definition: cross checking with parties' win/loss data (2)



- [✂]
- [✂]
- [✂]
- [✂]