HANSON UK

Competition Commission Market Investigation – Aggregates RMX and Cement

Addendum to the Provisional Findings

2 November 2013

1. **INTRODUCTION**

1.1 On 8 October 2013 the Competition Commission ("CC") published an Addendum to the Provisional Findings ("APFs") in which it presents for the first time a new Adverse Effect on Competition ("AEC") in the market for Ground Granulated Blast Furnace Slag ("GGBS"). On the basis of this analysis the CC issued, on the same day and in considerable detail, its proposed package of divestment remedies that would radically change the structure of the GGBS supply chain.

1.2 Hanson has a number of significant concerns with CC's approach to GGBS both in terms of the substantive evidence presented in the APFs and the procedural aspects which have compromised Hanson's ability to respond and to engage in meaningful consultation whilst decision making was still at the formative stage. This paper examines the main points of concern about the substance of the CC's thinking in the APFs. Hanson will respond separately to the Provisional Decision on Remedies ("PDR") and on the procedural aspects.

1.3 The paper is structured as follows:

- Part 2 explains why the original PFs were deficient in the level of analysis, and unsafe in their conclusions, regarding Hanson's (alleged) market power in GGBS and in any finding that the GGBS price was excessive.

- Part 3 acknowledges the CC's recognition that its original PFs were founded on the basis of a very significant understatement of the supply of Pulverised Fly Ash ("PFA") in Great Britain ("GB"). Hanson continues to have concerns that the CC is seeking to downplay the size and presence of the PFA market, as well as persisting in its reluctance to acknowledge the natural and everyday substitutability/inter-changeability between GGBS and PFA in practically all RMX applications.

- Part 4 explains the evidence that GGBS sits within a wider cementitious products market (including cement and PFA, amongst others) and why the CC's decision to invoke and rely completely upon the cellophane fallacy (also known as the 'gingerbread paradox') to dismiss this clear evidence is flawed, insufficient and circular.

- Part 5 emphasises that the CC's (alleged) evidence of excess profits in GGBS does not necessarily imply that competition is malfunctioning. Given the superior efficiency of Hanson's GGBS production, combined with the significant risk taken at the point the supply contracts were struck, there are entirely benign explanations for any differential between ROCE and the cost of capital, none of which the CC has taken into account for the purposes of its assessment.

- Part 6 explains why, contrary to the CC's thinking, the trajectory of Hanson's GGBS margins in response to the demand shock is consistent with Hanson operating in a competitive environment rather than being a monopoly as claimed.

- Part 7 explains that, while there could, in theory, be some effect on Hanson's GGBS pricing incentives due to its presence in both GGBS and cement, the CC

has not established that the additional effect is of sufficient, or indeed any, materiality. Therefore, this cannot be used to justify divestment.

- Part 8 explains why it is highly *unlikely* that introducing more GGBS suppliers into GB through forcing Hanson to divest GGBS plants will reduce prices for customers. There are binding constraints in the GGBS supply chain that would face any producer or producers of GGBS. These constraints imply that pricing will naturally, whether there are one or more producers, be constrained by cement/PFA etc. This strategy is unchanged by the number of suppliers created. Therefore, it is unproven that current GGBS pricing would change after divestments (and indeed there is considerable evidence to suggest prices may *rise* as synergies are lost and BFS/GBS producers ratchet up their prices once freed from the pricing conditions in the existing contractual arrangements).

- There are two annexes to this response:

  - **Annex A** includes information from the Data Room relevant to understanding the constraints in the GGBS supply chain (as well as certain non-Data Room information). This Annex has not been shared in full with Hanson. This Annex should, of course, not be published.

  - **Annex B** includes further information on the alleged GBS stockpile in response to statements made by Lafarge Tarmac about the size and quality of the stockpile.

1.4 Hanson reserves its rights to make further representations in view of the extreme timing pressures the CC has imposed upon Hanson. This is the first of any meaningful consultation on the functioning of competition in GGBS. Yet, in parallel, Hanson has also had to respond to the CC's already published PDRs in which the CC sets out in considerable detail proposed divestments for Hanson.

2. THE RELEVANT CONTEXT

2.1 In its original Provisional Findings ("PFs") published in May 2013, the CC concluded that there was a GGBS-related AEC that caused detriment in the GB *cement* market. This conclusion was unsafe and unreasonable. It lacked any robust evidence that GGBS prices were indeed too high.

2.2 In the PFs, the CC said:

> *"Our comparison of Hanson's GGBS volumes, prices and margins with its cement volumes, prices and margins (see paragraphs 7.128 and 7.129) was consistent with Hanson possessing a degree of market power in relation to GGBS, resulting in higher prices for GGBS in GB than might otherwise be the case"*[1].

2.3 The PFs contained no definition of the relevant market for GGBS. There was no explanation about why the observed comparisons were *"consistent with ... a degree of market power"*. There was no form of analysis or modelling to demonstrate that this alleged market power actually caused *"higher prices for GGBS in GB than might otherwise be the case"*. The CC also failed to explain how much higher prices were than might otherwise be the case i.e. there was no form of quantification of the alleged detriment caused, nor indeed any attempt at such essential analysis.

2.4 Paragraph 7.129 of the PFs set out the CC's (alleged) evidence on market power in four bullet points:

i) *"7.129 (a) Hanson's prices for GGBS rose when demand for GGBS fell in 2009"*. **This is not a sound basis on which to prove market power or that GGBS**

[1] PFs, paragraph 8.291.

prices were too high. It did not take into account, for example, the high rate of variable costs/electricity price inflation over the period which affected GGBS production and pricing. The CC's assertions omitted such key analysis from its work.

ii) *"7.129 (b) A greater proportion of Hanson's GGBS sales are to the other Majors, compared with Hanson's cement sales"*. **We see no basis on which this could be deemed to represent proof of market power or that GGBS prices were too high.** There is no economic theory to support that such sales demonstrate market power.

iii) *"7.129 (c) Hanson's prices for GGBS have risen slightly more than Hanson's prices for bulk cement"*. **This observation is not a sound basis on which to prove market power or that GGBS prices were too high**. This pattern could be explained, for example, by the fact that the variable costs for GGBS have risen faster than the variable costs for cement given that GGBS production has greater electricity intensity; yet the CC made no analysis of this.

iv) *"7.129 (d) Hanson's variable margins for GGBS are slightly lower than Hanson's variable margins for cement, but Hanson's overall margins for GGBS are higher than Hanson's overall margins for cement"*. **Such margins analysis cannot possibly prove market power or that GGBS prices were too high.** What made the CC's reliance on this comparison even more remarkable was:

(a) It was not open to the CC to rely on margin analysis to conclude GGBS prices were excessive, as the CC explicitly explained in its Margins Working Paper:

> *"The purpose of our margin assessment was **not** to determine whether margins could be deemed high or excessive. Such analysis forms parts of our profitability assessment, in which return on capital employed is compared against an appropriate competitive benchmark"*[2].

(b) The CC had found in its PFs that the returns of Hanson's cement business were [✂]. Therefore, it is unclear why in any manner their comparison with the GGBS margins could be said to show 'market power in GGBS'.

2.5 In summary, therefore, the CC failed to provide in its PFs any robust evidence to demonstrate the alleged problem in GGBS pricing which formed the foundation of the CC's GGBS-related AEC. The four points reviewed above serve to demonstrate the scale of the deficiencies in the CC's claimed market power analysis at the stage of the original PFs. Yet, despite these clear deficiencies in evidence and reasoning, the CC was content to publish its provisional findings of a GGBS-related AEC and then immediately move to focusing on the formulation of remedies in detail. Hanson's concerns in this respect are now being set out separately.

Addendum to Provisional Findings

2.6 The CC has since worked to backfill the required analysis that was missing from its earlier conclusions in order to support both its published PFs and the remedies it was formulating in detail over the summer. The CC has stated that it had no choice in doing so, in the context of a statutory timetable, which, for the most part, was spent by the CC investigating:

- Competition and suggested monopolistic power amongst the scores of aggregates producers in Great Britain;

[2] CC Working Paper: "Analysis of cost structures and profit margins: PART I: Purpose, approach and methodology", paragraph 7.

- Alleged foreclosure by the major cement producers of independent RMX producers. The independents had however consistently increased both capacity and market share at the majors' expense in RMX in recent years; and

- A series of attempts (which still continues today) to establish evidence of 'tacit coordination' in cement. The CC has, for example, repeatedly changed its approaches to calculating profitability, in a series of efforts to do what it can to find excess profitability in cement, and so customer detriment, with which to justify a divestment remedy. At several stages the CC's approach has changed fundamentally – see, for example, Hanson's response to the PDRs which shows the series of material changes in approach to profitability that took place between the PFs and the PDRs. The CC's financial and profitability analysis now depends upon treating the windfall profits arising from the sale of surplus carbon credits as "any other revenue". The CC has concluded that everyone was expecting such revenues from the start and that such revenues are expected to continue. Since nobody in government or industry expected these revenues, since the revenues were equally surprising to environmentalists and those driving the implementation of the carbon legislation and since those revenues have already fallen to zero (for both 2013 full year actual / forecast and 2014 plan / forecast), these are unusual conclusions on which to base the CC's entire detriment analysis in the Market Investigation in cement and GGBS.

2.7 The collective effect of the above has caused an extremely compressed timetable for the consideration of GGBS, with any form of meaningful industry consultation only now commencing on GGBS. The publication of the APFs has occurred almost 90% of the way through the two year statutory timetable. In fact, it follows the CC's formulation of detailed remedies through the summer of 2013 (as evidenced in the PDR). Given so little of the market investigation timeline remains Hanson is concerned that this has created a significant risk of error and even the risk of confirmation bias as a contributory factor.

2.8 The most substantive pieces of work the CC has undertaken in reaching its new provisional finding of an AEC in GGBS is to (a) seek to define a relevant market for GGBS, and (b) conduct a profitability analysis. Both steps should, in Hanson's view, have been conducted before publishing a provisional finding of a problem in this market, and to a timescale that would have given Hanson sufficient time to respond and the CC sufficient time to consider Hanson's response.

2.9 The APFs sets out, for the first time, the CC's new evidence on these critical pieces of work; there have been no working papers on these analyses. It is remarkably late for new substantive analysis to be produced for a product that has apparently been "*in [the CC's] sights from the word go*"[3]. Hanson has been obliged to engage with the CC on the detail of very significant remedies in GGBS before, and now in parallel with, the stage at which it has seen for the first time the substance of the CC's case against it. This has prejudiced Hanson's ability to respond to the CC's provisional findings at the point where the CC was still at a formative stage in its remedies design. As will be shown below, if the CC had allowed basic due process of consultation it would have been unnecessary to enter into a debate on divestment remedies.

2.10 Hanson notes that the Office of Fair Trading had seen fit to exclude GGBS from the MIR at the time of referral to the CC, the Office of Fair Trading having appreciated the difficulties and scale, having already extended the aggregates investigation to include the concrete and cement markets, and having realised that to then extend the investigation further to include industries in the steel, coal, slag and PFA markets was going to be an impossible task, if the study was to maintain a suitable degree of professional accuracy. It appears that the Office of Fair Trading's concerns in this respect have been proven well founded.

[3] Professor Martin Cave, Hanson Remedies Hearing, 2 July 2013. This statement is surprising given (a) the Office of Fair Trading had expressly considered the matter and stated that it was **not** including GGBS in its reference to the CC; and (b) there is no reference in the Profitability Working Paper published in November 2012 that the CC was anticipating conducting analysis on GGBS profitability.

2.11 In addition to the above concerns regarding how much time and resource has been spent by the CC in attempting one approach after another in order to establish excess profitability in the cement sector, Hanson is equally concerned at how unsafe the work on cement profitability has become. The clear conclusions that can be drawn from the various attempts at profitability assessment by the CC are that:

- The CC has found it extremely difficult to establish excess profitability in cement, most of its attempts being shown to be flawed after a more detailed examination; and

- The latest attempt, to the extent it can be said to establish any excess profitability (which is denied), is dependent upon some contentious assumptions by the CC[4]. For example, the finding of excess profitability is now entirely dependent on the inclusion of the profits generated by the sales of surplus carbon permits, where the CC at the PFs stage argued these should be excluded. The CC's approach to carbon is flawed and, even if the CC were correct, the fact is that this revenue stream from selling unused carbon permits is unlikely to persist in future (given the tightening of the carbon allowances regime).

2.12 The CC's principal AEC regarding GGBS is that it causes inflated prices and excess profit at the level of the GB *cement* sector itself. As the possibility of excess profitability at the level of the cement sector has already been shown to be highly debatable, stylised and, in Hanson's view, wrong, it then follows that there must be very significant uncertainty as to how that same AEC in GGBS can exist at all. As the CC states, the GGBS AEC is dependent upon a factor or outcome in the *cement* market that is itself is so uncertain and unclear.

3. THE SUPPLY OF PFA

3.1 The CC accepts that it erred in its estimate in the original PFs on the magnitude of cementitious PFA supplies in GB. In the APFs, the CC revises upwards its PFs' estimate of 500,000 tonnes in 2011 <u>by over 85%</u> to *"in the region of 950,000 tonnes in 2011"*[5].

3.2 Hanson welcomes this revision. However, we have significant concerns that an error of such magnitude was made in the first place in the PFs.

3.3 The CC explains that it revised its estimate because it received further information from Drax (the major producer of cementitious PFA in GB)[6] and the UK Quality Ash Association (UKQAA). It is concerning that the CC apparently chose not to consult the largest producer of PFA in GB, or the industry body representing the Ash producers, before the PFs were published. Hanson does not understand how an error of such magnitude can be made by a regulatory body supposed to be undertaking a thorough and even-handed assessment of evidence.

3.4 The CC also says in the APFs that PFA supply will fall over the next few years. It has referred to the closure programme for the GB coal-fired power stations. Hanson,

[4] Hanson has provided comments on the CC's changed approach to profitability in response to the PDR. There are several reasons to consider the CC's conclusion of excess profitability based on only a 2.4 percentage point differential between ROCE and WACC to be unsafe. This is an unprecedentedly low level on which to conclude excess profits. As we note, it depends entirely on a flawed treatment on the profits from selling carbon allowances. The CC's own independent expert noted that the time period of measurement is not ideal. The CC has fundamentally changed its calculation of impairments since the PFs – now choosing to move to a highly prudent extreme. Had the CC continued to use its approach to impairments from the PFs, its own scenario in the PDR (the only scenario it shows) illustrates that excess profits would disappear entirely. The differential between ROCE and WACC also falls to under 1 percentage point if the CC uses the top end of its WACC range (as it has done in the Private Healthcare investigation). Given the extreme uncertainty of the differential and the CC's approach to reaching it, it is remarkable that the CC concludes that divestment remedies in cement are justified. Even the outcomes of the CC's approach are counter-intuitive. The ranking and returns of the four Majors have also changed entirely between the PFs and PDRs, calling into question the CC's earlier conclusions and theory of harm. For example, the CC's new analysis now suggests [✂], earned the highest profits over the period.

[5] APFs, paragraph 14.

[6] Footnote 3 indicates that the CC had a telephone conference with Drax power station on 1 August 2013 months <u>after</u> the PFs were published.

however, believes this declining market in PFA is overstated and Hanson reserves the right to submit further material on this point[7]. For example, the CC's work does not take into account the reconsiderations now underway by power companies in relation to such closures. Hanson understands that the power companies will now be able to continue using coal in their power production where their organisation also uses biomass production for c.50% of power supply. It was previously assumed that the switch would need to be to 100% biomass in order to ensure compliance with the applicable EU regulations. However, Hanson understands that regulatory compliance can now be achieved on the basis of an even split between coal / biomass power generation, inevitably causing a reconsideration of the closures that the industry thought would necessarily follow.

3.5 Hanson invites the CC to refrain from playing down the effects and scale of PFA. At nearly 1 million tonnes, PFA is of a similar scale to domestically produced GGBS. Hanson also notes its concern that the CC has now already formed its PDR based on a very significant error of understanding in relation to PFA. This raises a natural uncertainty over how the CC's decisions can have been made on a safe and legitimate basis, when it expressly depended upon errors of such a magnitude.

4. MARKET DEFINITION FOR GGBS

4.1 The CC did not define the relevant economic market for GGBS in the PFs. This was surprising as well as irregular, given that the CC had reached a 'conclusion' that GGBS prices were 'too high', which in an abuse of dominance case would have required proof of dominance (of which market definition is usually a first step)[8]. The CC omitted to consider by way of any proper analysis how interchangeable GGBS and PFA are in the market, even for the most technical of application in terms of durability and resistance, and CC only rested its view upon brief statements on substitution between PFA and GGBS - saying that the views of parties "*varied*". There was no formal market definition analysis of any description (and no mention of the cellophane fallacy on which the CC's case now seeks to depend).

4.2 The CC has concluded that because of the cellophane fallacy it is the *prices* of GGBS that unnaturally coerce customers into having to consider PFA as a competing product. That is not and has never been the reality of the market. This conclusion and absolute dependence by the CC upon the cellophane fallacy in order to exclude PFA from the market definition is offered as a statement of 'belief', with the CC's findings on GGBS then depending on it. The CC's conclusion is not only contrary to the significant volumes of email evidence and business data that is before the CC: the CC proffers the conclusion without analysis on the natural substitutability, which has always been clear and known to customers and industry alike. Hanson suggests that this is another basic but major omission of the CC, in its consideration of the context of GGBS.

4.3 The CC explains in the APFs that it has, since the PFs, given 'further' consideration and 'augmentation' in respect of the relevant market for GGBS.

Evidence consistent with GGBS being part of a cementitious products market

[7] For a legal perspective, based on Drax's information explaining such a fall (APFs, paragraph 8 and paragraph 17 CC GGBS WP), this fall would largely appear to be caused by UK and EU government policy, driven by e.g. environmental objectives. It would be unfair and disproportionate if the CC imposed the proposed remedies on Hanson to address issues arising in the market caused by such policy decisions. Instead, the CC should make recommendations of policy change to the Government; and/or, if any competition objectives have not been achieved, consider whether this is outweighed by environmental objectives.

[8] Excessive pricing would usually fall within Chapter II of the Competition Act, under which the OFT would need to first establish dominance and then establish abuse. The CC has done neither in this case. The CC has no grounds to find Hanson as dominant in the GGBS relevant market without first defining the market. Indeed, we note in OFT guidance on market definition in abuse of dominance (Chapter II) cases says: "*The OFT would not consider an undertaking to be dominant unless that undertaking had substantial market power. The definition of the relevant market(s) is a necessary first step in assessing whether an undertaking is dominant*" (emphasis added) (available at http://www.oft.gov.uk/shared_oft/business_leaflets/ca98_guidelines/oft403.pdf).

4.4 Hanson argued that GGBS sits within a broader cementitious products market in which GGBS competes against cement, PFA, and other products. Hanson's day-to-day experience is that customers can and do switch between various products which substitute for each other, and this presents a real and effective constraint on Hanson's GGBS pricing.

4.5 The CC cites a substantial body of evidence consistent with this view in the APFs – for example:

> *"The comparison of the costs of producing RMX and blended cement with PFA and GGBS, or with pure CEM I,… suggest that blended cements created through mixing in PFA are broadly in the same price ranges as blended cements created through mixing in GGBS. Therefore, it seems plausible that the current GGBS prices may be constrained by the combination of PFA and CEM I prices….This could suggest that, at current prices, a small increase in the price of GGBS could result in switching to PFA and cement … This would mean that at current prices, GGBS prices may be constrained by a combination of PFA and cement prices"*[9].

> *"We agreed that this [Hanson GGBS] pricing tool suggested that the price of GGBS set by Hanson to individual customers were currently directly constrained by the pricing of PFA and CEM I. This was also consistent with the other evidence we reviewed on prices of GGBS"*[10].

> *"Taking into account all the evidence gathered to date on the extent of substitution between GGBS and PFA …. we consider that: (a) The closest substitutes to GGBS are PFA and CEM I. (b) The pricing evidence, the evidence from Hanson emails and the evidence by Hanson on threats to switch that we reviewed suggests that GGBS prices are likely to be currently constrained by CEM I and PFA prices. (c) Although imports of GGBS may exert a constraint on Hanson prices for GGBS, overall imports of GGBS remain low (around 10 per cent of GGBS sales in GB). (d) Hanson directly takes into account the pricing of PFA and CEM I in setting GGBS prices for individual customers"*[11].

> *"On the face of it, this suggests that, at current levels of GGBS prices, GGBS is part of a wider product market including CEM I as well as PFA (a broad cementitious market)"*[12].

4.6 The CC focuses on the price dimension. However, GGBS, PFA and cement have strong functional inter-changeability (so substitution is functionally possible irrespective of price). GGBS was specifically created to be substitute to cement. GGBS and PFA are routinely substituted, with both products providing similar benefits on the key characteristics of durability and resistance in eventual RMX applications. Customers choose these substitutes for that reason, as well as the environmental benefits associated with the use of such waste products and the fact that they allow a meaningful discount relative to cement. The CC has declined to recognise how customers switch between these products naturally, as opposed to undertaking substitution only due to price.

4.7 This outcome that GGBS is part of a broader cementitious market is consistent also with the European Commission's findings during the *HeidelbergCement/Hanson* merger decision of 2007:

> *"...[T]he market investigation has confirmed that concrete producers could easily switch to cementitious products other than GGBS (fly ash or grey cement), within a short period of time and through little additional costs. Switching from one cementitious product to another would be all the more foreseeable as concrete producers' methods in the UK are specific to continental concrete producers in so far as in house blending is a common habit. …"*[13]

> *"…GGBS as such is not a critical component absolutely necessary for the production of concrete products and its use, with few exceptions, does not entail a significant product differentiation in the downstream markets. As already explained in the product market*

[9] APFs, paragraph 25.
[10] *Ibid*, paragraph 29.
[11] *Ibid*, paragraph 37.
[12] *Ibid*, paragraph 38.
[13] Case No COMP/M.4719 – *Heidelberg Cement/Hanson*, paragraph 19.

definition sections, concrete products basically need as inputs cement, aggregates and additives, normally fly ash and GGBS. However, in the final blend, the proportions of cement, fly ash and GGBS can vary and are substitutable [for] each other to a certain extent. Therefore, the impact of a restriction of GGBS has to be assessed in the light of the possible reactions that the GGBS customers may undertake. GGBS can in practice be even entirely substituted by cement or by fly ash, a possibility which, despite the differences in characteristic and prices (in any case fly ash is cheaper than GGBS) constitutes a real threat on the company trying to implement the foreclosure strategy."[14]

"Overall, the use of GGBS as an additive to cement varies from a concrete producer to another, but a vast majority of the respondents to the market investigation agreed with a product market including at least all cement additives (GGBS and fly ash)." [15]

"The parties submit that the market for cement additives and GGBS may be wider than national, considering the increasing cross-border trade, in particular the growing imports of GGBS into the UK. This extent has been supported by the market investigation that has confirmed that European continental cement, fly ash and GGBS exporters exert a price pressure as regards the UK." [16]

"Firstly, it has to be taken into account that a cementitious market would comprise three main types of products (GGBS, fly ash and grey cement) which, despite being to certain extent substitutable, remain rather differentiated products. In this respect, the market investigation has confirmed the limitation in substitution in particular from grey cement towards GGBS and fly ash. For example, ready-mixed concrete containing substantial amount of GGBS have higher setting time, which can be a desirable property for some applications (bridge construction) but less desirable for some other usages (flooring). Fly ash gives the ready-mixed concrete a darker colour whereas the use of GGBS results in a lighter coloured concrete, which similarly can affect demand substitutability between fly ash and GGBS. Thus, concrete can be produced using cement exclusively, GGBS can partially substitute cement up to a maximum of 80% (in the UK) while fly ash can do it up to 30%. In addition, price differences are also to be taken into account, fly ash and GGBS being respectively around [60-70]% and [10-20]% cheaper than cement. It follows that reaching a common understanding of the terms of coordination appears to be highly unlikely given the lack of homogeneity in a cementitious market." [17]

"Product standards do not require choosing a certain product mix and for all classes of concrete either GGBS or fly ash can be used. Even if for a given application the use of GGBS were to be necessary, the possibility of switching to cement or fly ash in other applications would constitute a real threat." [18]

4.8 The finding of GGBS being in a broader market would, of course, undermine the CC's earlier provisional findings of market power and remove any case for remedies. The share of Hanson's GGBS production within this broader market is approximately 10%. Clearly, within this broader market, even as the sole GB producer of GGBS, Hanson (or, indeed, any other GGBS producer) would be a price taker.

4.9 The CC, therefore, seeks to dismiss the relevance of this substantial body of evidence.

The cellophane fallacy means a narrow market

4.10 The CC dismisses all of this clear and real evidence of substitution between cementitious products by invoking the 'cellophane fallacy'[19].

4.11 The Market Investigation Guidelines explain:

"There are some practical difficulties in using the HMT [Hypothetical Monopolist Test] in market investigations. If significant market power is already being exercised, using prevailing prices can lead to defining markets too broadly and possibly to an incorrect inference that significant market power does not exist. In theory, the HMT could be

[14] *Ibid*, paragraph 107.
[15] *Ibid,* paragraph 20.
[16] *Ibid*, paragraph 31
[17] *Ibid*, para. 86.
[18] *Ibid*, para. 108.
[19] Also sometimes referred to as the 'gingerbread paradox'.

implemented in the presence of market power using notional competitive prices, but in many cases it is difficult to assess what those prices would be. There is also a risk that using a notional benchmark in effect assumes the existence of significant market power as part of the framework within which the competitive assessment is being undertaken"[20].

4.12 Hanson has a number of significant concerns that the CC's reliance on the cellophane fallacy is incorrect. Hanson recognises that the cellophane fallacy may present a potential risk in market definition. But where this concept is invoked by a competition authority to dismiss otherwise clear evidence of actual and natural substitution, it should be accompanied by a high standard of proof – the onus is on the CC to establish the market power/dominance, not simply to presume it in the face of contrary evidence, which the CC appears to be doing here.

4.13 The CC bases its conclusion that the observed substitution is, in fact, the cellophane fallacy in action on two factors:

i) The CC is of the view that its GGBS profitability figures "*strongly suggest that current prices of GGBS may be in excess of the prices we would expect in a competitive market, as a result of Hanson exercising market power in GGBS*"[21]. The profitability figures are, therefore, fundamental to the CC conclusion that "*in light of our analysis of GGBS profitability …. [we] consider that there is a distinct [narrow] relevant product market for GGBS, which is closely related to cement and PFA, given that GGBS is both a partial substitute to cement and PFA*"[22].

ii) The CC assumes that if there were two (or more) GGBS producers the "*competitive price*" would be lower than the current GGBS price. It contends that *"If there were several competing producers of GGBS in GB, we would expect these to be more focussed on competing between themselves for selling GGBS to GB customers, rather than on competition with CEM I and PFA*"[23].

4.14 As explained below, there are several reasons why the CC's interpretation and reliance on these two factors is flawed. The two factors do not provide sufficient grounds to dismiss the clear evidence that GGBS is part of a wider cementitious market.

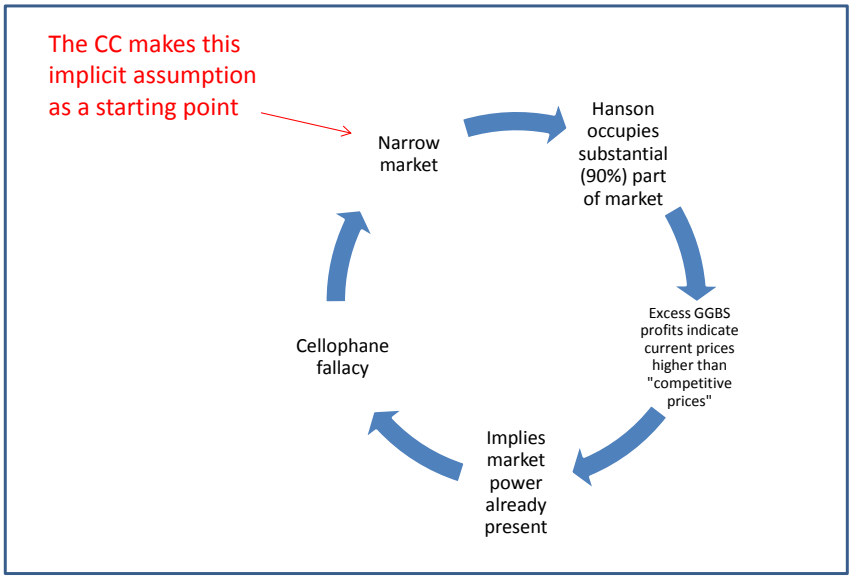
4.15 First, the significant risk of confirmation bias in invoking the cellophane fallacy should be noted. The CC implicitly presumes a narrow market as a step to using the profitability analysis to invoke the cellophane fallacy, which it then uses to define the market as narrow. The Market Investigation Guidelines make clear a condition which must be present before profitability analysis can be relied upon to imply a limitation in the competitive process:

"In practice, a competitive market would be expected to generate significant variations in profit levels between firms ... However, a situation where profitability of firms ***representing a substantial part of the market*** *has exceeded the cost of capital over a sustained period could be an indication of limitations in the competitive process"*[24].

4.16 Therefore, in relying on the profitability analysis to evidence the cellophane fallacy, the CC has implicitly assumed Hanson occupies "*a substantial part of the market*" i.e. that the market is narrow. This reasoning is circular, as illustrated in Figure 1.

[20] Market Investigation Guidelines, paragraph 139.
[21] APFs, paragraph 41.
[22] *Ibid*, paragraph 43.
[23] *Ibid*, paragraph 42.
[24] Market Investigation Guidelines, paragraphs 117 and 118, emphasis added.

Figure 1: Circularity in CC's reasoning on cellophane fallacy

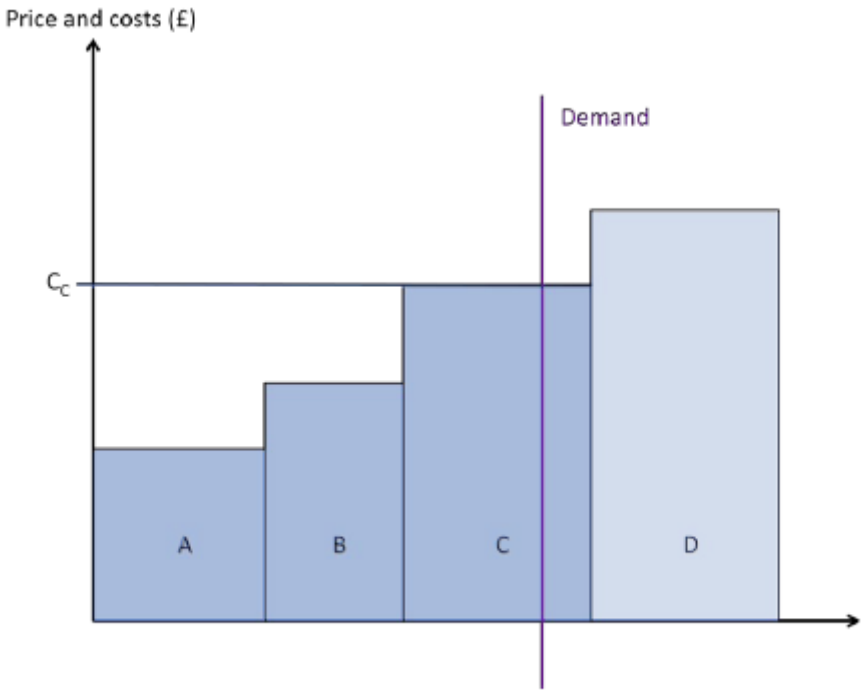


4.17 Given this significant risk of circularity and so confirmation bias, the CC must be expected to present multiple strands of evidence in support of the cellophane fallacy. Further, it should meticulously rule out all other possible explanations for the (alleged) excess profits that would provide a more benign explanation. The CC did not do this, and as shown below, there are entirely legitimate reasons why Hanson's GGBS production may exhibit supernormal returns in a broader cementitious market.

4.18 Second, the profitability analysis is the CC's only tangible evidence (beyond speculation) that the cellophane fallacy may be in action. In Part 5 below, we explain why the CC has both overstated and misinterpreted the differential between ROCE and WACC. However, even if a differential were to exist, and it could reasonably be interpreted as indicating returns in excess of WACC, the CC would need to be very careful in interpreting this to imply that the current observed price is not the competitive price. Standard economic models show that, in a competitive market, more efficient firms can make 'supernormal' economic returns where the less efficient (marginal) firm make only normal returns. Indeed, the CC's own construction of a "well-functioning market" in cement – shown in Figure 2 – serves to illustrate this principle[25]. The marginal firm, C, sets the market price where more efficient (infra-marginal) firms with lower unit operating cost (such as A and B) may be in a position to enjoy a degree of "producer surplus" (the difference between the market price and their costs). What this illustrates is that supernormal profits can be present in a well-functioning market where firms are of differing levels of efficiency, all firms are price takers, and the market price is competitive.

[25] Please see Hanson's response to the PDR in which it is explained why the CC has erred in its precise construction of the well-functioning market (in the CC's construction the market would ask firms to act irrationally and not be able to make financial capital maintenance). However, were this issue in construction corrected, the principle remains that a well-functioning market, where supply is upward sloping due to differences in relative efficiencies between firms, can have the most efficient firms earning supernormal profits and this is not necessarily a symptom of market malfunction.

Figure 2: CC's illustration of a well-functioning market in cement



Source: CC.

4.19 Therefore, the CC cannot assume that a single firm's excess profits proves a narrow market until it has ruled out the possibility that the excess profits are benignly due to the firm being an infra-marginal player within the broader market. The CC has not done this, despite Hanson specifically raising this issue to the CC at length in its submission of 30 July 2013.

4.20 The facts of the matter are that GGBS production is relatively lower cost than cement production i.e. a GGBS producer is comparatively more efficient than a cement producer. Therefore, within the broader cementitious market, the GGBS producer is an infra-marginal player which can potentially earn supernormal profits despite being a price taker. Hanson's three active GGBS plants are substantially more efficient per tonne than any of the cement plants active in GB, which would lead to a significant differential between market price and unit operating costs even where the market price for cementitious products is competitive.

4.21 Third, the CC is wrong to presume that the "*competitive price*" for GGBS, with two (or more) GGBS producers, will be lower than the current price. The CC has completely omitted from its thinking the binding supply/capacity constraints on GGBS production in Great Britain. As shown in paragraph 1.2 to 1.7 of **Annex A**, there is a finite amount of blast furnace slag – the essential raw material for GGBS – available from the three steelworks in the GB. This raw material constraint is outside of the GGBS producers' control[26]. Further there is a binding constraint on the current capacity of the GBS granulators.

4.22 *Even if* the GGBS supply chain ran at maximum capacity there would be no more than a few hundred thousand tonnes of GGBS produced in GB (to go beyond this would require de-mothballing Hanson's [✂] inactive granulators and/or upgrading its Purfleet site). And clearly running at absolute capacity is itself highly unlikely as is evidenced by recent blast furnace production and continued evidence of the blast furnace production being under pressure – see information in **Annex A** on the very recent further job cuts by Tata.

[26] The CC acknowledges that "*the supply of BFS that is processed to produce is determined by the iron and steel production at the steelworks …. [and as such] Lafarge Tarmac currently has restricted ability to influence GBS volumes*" (paragraph 78).

Therefore, production capacity will remain substantially below the demand for the cementitious products for which the GGBS producer or producers compete.

4.23 At the point that this supply constraint 'binds' the GGBS supply curve becomes vertical. If cementitious product demand exceeds this supply, the market price will rise until the market clears (the demand curve intersects with the supply curve) or the price of the next best substitute to GGBS is reached – the price of PFA, cement or imported GGBS etc. – as the price of GGBS could rise no further.

4.24 The profit-maximising strategy for the supply-constrained GGBS producer or producers is to price just below the price of the next best substitute. At this price the producer knows it will be able to sell all its stock (and it would not be profit-maximising to cut the price). In the presence of the binding supply constraint, this strategy will be the same for each GGBS producer no matter how many GGBS producers there are.

4.25 In fact the CC's own analysis of a well-functioning market in cement recognises this issue:

> *"Since cement producers' production capacities are limited, prices can rise above the marginal plant's unit operating costs due to customers competing for limited quantities. On the face of it, such situations appear to be non-competitive in the sense that firms are selling at prices above marginal or average incremental cost. This would seem at odds with price competition – usually one would expect there to be an incentive to gain additional business by under-cutting rivals' prices. However, this assumes that firms can expand output without incurring high incremental costs. If all plants are operating at full capacity, this is clearly not the case"*[27].

4.26 The binding supply constraint on GGBS production (no matter how many producers provide it) means that marginal tonne of GGBS is in competition with the tonne of the next best alternative substitute. Thus, **the "competitive price" that would arise with two (or more) GGBS producers is the same as the "current price" where substitution is taking place with cement and other cementitious products**. The important implications are:

i) The CC cannot simply assume a competitive price is below the current price while binding supply constraints are present and demand outstrips this supply.

ii) If the "competitive price" is the "current price", then concerns about the cellophane fallacy disappear. The observed evidence of substitution is real. GGBS is part of a broader market, as is consistent with the actual evidence.

iii) The CC is wrong to suggest that Hanson divesting GGBS plants, and so creating more than one GGBS producer, will necessarily have an effect on GGBS pricing. The two suppliers will still price just beneath the price of the next best alternative not already supplying cementitious products, given the supply constraint. So the divestment remedy would be ineffective in addressing the alleged AEC.

4.27 It is noted that in reality the supply constraints on GBS are already binding; and, therefore, the CC is undertaking significant speculation in assuming that GGBS supply can/will increase very significantly as a result of its remedies. See **Annex A** which shows that Hanson has consistently used all the GBS made available to it by Lafarge Tarmac. For example, in 2012, it is Hanson's understanding that more GBS was used than was produced. The CC's analysis of remedies in the PDRs omits consideration of these constraints and prefers instead to rely on hypothetical volumes that could be achieved if the supply chain operated at near maximum hypothetical capacity. This is mere speculation by the CC.

4.28 Fourth, it is far from clear that the CC's use of the cellophane fallacy is even conceptually valid. The fallacy starts with a product in a narrow market having no substitutes. If that product was supplied competitively it would not have any supply side competitors. The

[27] PDR, Appendix 1, paragraph 36.

product gets monopolised and the price rises so that products that would normally not be considered substitutes become substitutes. In other words, products considered *inferior for the task* are brought into play because the cellophane product has become too expensive. These 'competing' products are not equally effective but get used. This must be because they are cheaper. Customers accept the lower utility of the "substitutes" in order to escape the monopolised price of the cellophane product. Yet, conceptually, this does not work for GGBS. GGBS is (i) not inherently superior to CEM I or PFA for the vast majority of tasks; and (ii) is not more expensive than the alleged inferior substitute of cement only used because of monopolised pricing of GGBS. Therefore, the CC must step back and consider whether its application of the cellophane fallacy in this case is sound at a first principles level.

4.29 Fifth, the CC's analysis omits any reference to the fact that the remedies, as devised by the CC, could have the immediate effect of allowing the steel industry and the GBS operators to raise their prices (given they control the essential input into GGBS) as the pricing arrangements in existing contracts would be removed. Faced with upward price pressure on input costs, GGBS prices would rise. The CC's theoretical presumption that prices will fall significantly cannot be safe, especially as the CC's work omits all assessment of the impact of such price increases.

4.30 In summary, the CC's reliance on the cellophane fallacy is flawed. The evidence that GGBS is part of a broader market cannot be dismissed in whole as the CC has done. Hanson's GGBS production has only around 10% of the broad cementitious market and, as such, Hanson is not in a position of market power but is a price taker. Nor will the GGBS price change on the basis of the CC's proposed divestment remedies.

4.31 In the hypothetical situation that some of the substitution was due to the cellophane fallacy, it is not clear that all of the evidence of substitution could be discounted in full as the CC has done. Hence GGBS would still be part of a market wider than GGBS alone. Even if, for example, only PFA was included in the GGBS market, Hanson's GGBS production share would fall to around 45%-50%, certainly not the 'monopoly' the CC is resting its analysis upon, calling into question the proportionality of invasive divestment remedies.

Geographic market

4.32 Imported GGBS is a viable option and acts as a further constraint on Hanson's conduct. The CC, however, dismisses the importance of imports by arguing that the share of imports of GGBS is small and imports are "*very limited*"[28]. Hanson notes that the fact that imports are low today does not exclude the possibility that imports could flood into the market (and so exert full constraint) if the domestic GGBS price were to rise. Indeed, the European Commission noted in Heidelberg/Hanson that GGBS imports into the UK had grown from "*virtually zero in 2001 to approximately [10-20] per cent in 2006*" – this illustrates the speed of entry. Given the surplus capacity available at import terminals, there is a potential to increase imports quickly in response to any price rise. This is a real constraint.

4.33 Hanson also notes also that PFA can be imported as an effective constraint.

4.34 Hanson is also confused how the CC's logic with respect to GGBS imports is consistent with the CC's logic in respect of the effect of GGBS on cement prices. On the one hand, the CC is arguing that GGBS imports of approximately 10% of the market are insufficient to provide an effective constraint on GGBS prices, stating that such a proportion can be discounted as being "very limited". Yet, on the other hand, the CC suggests that increasing the supply of GGBS, which itself accounts for only around 10% of the cementitious products market, *would* be certain to have a significant effect on cement prices. Indeed, the limited possible expansion in GGBS supplies that the remedies could

[28] APFs, paragraph 85.

cause (given the existing supply levels of over 1 million tonnes and given existing supply constraints) means an even smaller incremental effect on the cement price[29].

4.35 Hanson's figures on GBS volumes and stockpiles have already been shown to be accurate and reliable. It is now certain that the CC's conclusions based upon 1.5mt of readily usable GBS coming to the market from stockpile were wholly incorrect: the stockpile volumes have been shown to have been grossly overstated and exaggerated; similarly, analysis regarding the additional limitations on stock (caused by aging and quality) has been omitted from the MIR and so ignored in effect. This is explored further in **Annex B**.

4.36 Furthermore, Hanson's figures have also proved that more GBS was processed into GGBS last year than was produced from the granulators. Hanson's figures have again been shown to be accurate and reliable, whilst the CC (and LT) have continued to refer to the very significant volumes of GBS / GGBS that will flood the market and bring down the CEM I price. Even giving the CC the benefit of the doubt and allowing for a surplus of c100kt of GBS pa (based on the last full year numbers for available GBS), it is impossible to see how such a small volume (100kt) could bring down the price of CEM I, whose market size is close to 10,000,000 tonnes pa. The CC has concluded that in the context of GGBS imports, volumes representing 10% of the market are 'very limited' and cannot constrain GGBS prices. And yet in the context of GGBS affecting the price of cement itself, the CC has concluded that the falling demand / reducing volumes for CEM I caused by the making available of additional GBS / GGBS volume (of only c100kt) will somehow constrain and temper the price of CEM I itself, when that new volume (of only 100kt) accounts for a mere c.1% (one percent) of the cement market. The CC's conclusions in this respect, therefore, appear to be egregious, and yet the CC is depending upon such analysis in order to conclude that its remedy in GGBS is appropriate, in the context of proving and alleviating the CC's stated principal AEC in relation to GGBS.

Market definition - conclusions

4.37 There are strong grounds, as described above, to conclude that the CC has failed in its duties to define the market on the basis of the evidence. It has placed undue reliance on the cellophane fallacy to dismiss relevant evidence where in fact its reasoning is flawed, speculative and inconsistent with the facts of the market. The CC has thereby wrongly assumed from the outset, and continues to rely upon, too narrow a market for GGBS.

4.38 The definition of the relevant economic market is fundamental to the finding of the alleged AEC in GGBS and the alleged GGBS-related AEC in cement. As such fundamental debate is still underway on the size and boundaries of the respective markets for GGBS and PFA, Hanson's contends that these issues and considerations should have been clarified in detail in the early stages of the market investigation when consultation on GGBS and PFA ought to have commenced. Given the importance of market definition it is impossible to understand how the CC has only undertaken analysis on this so late in the market investigation and after PFs have been made. Whereas the CC undertook market definitions for Aggregates, RMX and Cement earlier in the investigation, the CC decided not to undertake the necessary analysis on GGBS – a product allegedly in its sights from the outset (despite the Office of Fair Trading confirming that it was *not* including GGBS in the reference products). The CC's argument that it had to sequence its investigation to start with the other products and markets first and leave GGBS to the end, and in so doing leave any analysis and consultation on GGBS to the last stages of the market investigation, compromises Hanson's rights to a fair hearing on these issues.

5. GGBS PROFITABILITY

5.1 Following the PFs, the CC conducted an analysis of economic profitability in GBS and GGBS between 2007 and 2012. It finds that Lafarge Tarmac [✂]. However, it argues

[29] It is Hanson's understanding that, in 2012, a volume equivalent to all the available GBS produced by Lafarge Tarmac was used in GGBS production. Therefore, given the capacity constraints are already binding, it is unclear that there would be room for even a 1% increase in the supply of cementitious products due to the CC remedies in relation to GGBS.

that Hanson earned excess returns with a differential between ROCE and WACC of approximately [✂] percentage points on average over the period.

5.2 First, Hanson notes its concern that the CC at no point consulted on the approach it would apply to the GGBS profitability analysis. Indeed, GGBS is not mentioned in the Working Paper on the approach to profitability published on 28 November 2012. The CC made reference to its approach in its information request published 26 June 2013 where it stated that it "*plan[ned] to analyse the profitability of your GGBS activities in line with the approach we took to preparing current cost profitability information for your cement activities*"[30]. However, we note that the CC fundamentally changed its approach to calculating cement profitability between the PFs and PDRs now published, meaning there was no proper consultation on the CC's profitability approach for GGBS in advance of the APFs.

5.3 Second, Hanson made extensive representation to the CC in its submission of 30 July 2013 that caution must be applied in interpreting profitability where there are entirely legitimate reasons for the observed pattern. These include:

i) Efficient firms can make supernormal profits even in competitive markets where they are infra-marginal players. Production of a tonne of GGBS is clearly at lower cost (and substantially so) than a tonne of cement. So a GGBS producer would be an infra-marginal player within the cementitious products market.

ii) The CC is observing a 'success scenario' (i.e. a survivorship bias) where GGBS has grown to be a successful substitute for cement. At the point at which Civil & Marine made its investments and struck the 30-year supply agreements, GGBS production faced significant risk (both in terms of product acceptance and the prospects for steel production in the UK). Therefore, a risk-adjusted approach to returns should be applied as would be undertaken in an *ex ante* project-appraisal. For example, Ofcom stated in its assessment of BSkyB's performance:

> *"At the point where a risky project is undertaken, there are a range of outcomes that may arise, each with an associated probability. A project may, for example, have two outcomes, success or failure. An investor would form an ex ante view on the expected return of this project, based on the return in each possible state and the probability associated with each state arising. A fair bet in the case of a new investment would be one where this ex ante expected return covers the cost of investment, including the cost of capital…..Where a successful outcome arises, the observed return derived in this state is likely to be higher than the ex ante expected return and in particular, higher than the cost of capital. Such a return may still however be reasonable. This is because when the investment was undertaken, there was an ex ante probability of failure and a lower return associated with this outcome."* [31]

Hanson has repeatedly explained to the CC that the assessment of risk must be factored in to the profitability analysis to an appropriate degree in order to allow a review of the GGBS business in the context of the risks it has had to face. The current mothballing of two GGBS sites, Llanwern and Teesside (with [✂]), are clear undeniable examples of these risks materialising. Within the last week, announcements have been made regarding hundreds of jobs being cut from Scunthorpe and the steel industry's scheduled relining of the Queen Anne blast furnace at Scunthorpe this October to preserve and even boost production did not occur. However the CC has persisted in omitting such recognition and assessment, despite its own guidelines stating that above average profitability may represent normal commercial practice in such circumstances, and despite the Office of Fair Trading recently confirming its own concerns that there are significant risks at the level of the steel industry, which would, by implication, compromise the availability of the granulate that is essential to allow the production of GGBS.

[30] Note this was over a month after the publication of Provisional Findings.
[31] Ofcom (2006), 'Provision of Technical Platform Services – Guidelines and Explanatory Statements', Annex 4, A4.3- A4.5, September.

iii) The contracts between Civil & Marine and Tarmac were entered into in a competitive market. Were there any excessive returns expected *ex ante*, economic theory would suggest these would be extracted by the owner (the franchiser) of the essential input (the GBS) – in this case Tarmac (or the steelworks upstream[32]). Tarmac also had the option of bypassing Civil & Marine and undertaking its own grinding of GBS, so it had the whip hand in the negotiation. Therefore, if *ex post* the GGBS level exhibits any excess returns this could either be (a) due to a success scenario that had lower probability *ex ante*, or (b) the luck of a better outcome from the agreement with Tarmac than originally expected.

5.4 Third, Hanson continues to believe that the relevant WACC benchmark to apply is not that of Hanson ([✂]%) but of Civil & Marine at the point the contract was struck. The current cost of capital of a firm is a forward-looking indicator based on the riskiness of the firm's revenue stream going forward. It does not fully reflect how risky the firm's revenue stream was when the initial investment was undertaken and so will underestimate the risk the company faced. The Office of Fair Trading has itself clarified the issue and explains:

> *"In profitability assessments of realised rates of return, the relevant cost of capital is the ex ante cost of capital — i.e. the cost of capital that was used in assessing the project at inception. This is particularly important for risky projects that carried a high likelihood of failure. The ex ante cost of capital has to be adjusted upwards to capture the inherent risk (the result is commonly known as a hurdle rate). When a competition authority is assessing returns that have been realised, a comparison of the realised rate of return with an ex post cost of capital that does not reflect the risk of failure of the project could lead to an overstatement of profitability".*[33]

5.5 The cost of capital for Civil & Marine, a much smaller private firm taking on a risky venture, would have been significantly higher than that of Hanson's. This would reduce the alleged differential between ROCE and WACC.

5.6 Fourth, Hanson notes that the time period of the CC's analysis – 6 years – is short for long-lived and significant assets. The independent expert asked to comment on the CC's analysis of cement profitability recognised that the period is less than ideal. Given the uncertainty of the period, and whether it provides a representative snapshot of profitability over the life of the assets, it is unfair to base far-reaching and permanent divestment remedies on the evidence of excess profitability alone.

5.7 Finally, the Market Investigation Guidelines explain that profitability data on its own is not sufficient:

> *"In summary, the CC will consider prices and profitability in the context of its overall assessment of the market. While useful, findings that price-cost margins are wide or profitability is high in a market do not on their own provide conclusive evidence that the market could be more competitive. Such findings are not in themselves causes of competitive harm—they are not features of the market for the purpose of the AEC".*[34]

5.8 Therefore, the CC must provide further evidence to complement this alleged excess profitability before reaching a conclusion that the market "*could be more competitive*".

5.9 Hanson asks that the CC reconsider its submission of 30 July 2013 where many of the above issues were raised in detail; yet there is little evidence the CC has taken them into account.

6. MOVEMENTS IN MARGINS

6.1 The CC finds that Hanson's GGBS margin over variable costs decreased from [✂]% in 2007 to [✂]% in 2012. In real terms, Hanson's unit variable profits were relatively stable

[32] See **Annex** A, Section 9, of this paper for clear evidence of the strength of the steelworks in SSI's comments to the CC that it could refuse to supply the owner of the granulator if it was minded to.
[33] OFT paper prepared by Oxera, "*Assessing profitability in competition policy analysis*", Economic Discussion Paper 6, July 2003.
[34] Market Investigation Guidelines, paragraph 126.

between 2007 and 2012, indicating that price rises moved in line with input cost increases (e.g. electricity inflation) in GGBS production.

6.2 The CC, however, states:

> *"Despite a large reduction in demand for GGBS following the demand slump, although there was evidence of some reduction in margins on variable costs in percentage terms, this did not translate into a substantial reduction in Hanson's absolute margins or prices which we might expect to see in a competitive market. This further points towards a degree of pricing power by Hanson"*[35].

6.3 This reasoning is confused. In standard economics, when demand falls, margin may fall both in monopoly and competitive markets, but margin falls more under monopoly than under competition (as it has more room to fall). Therefore, the fact that Hanson's GGBS margin did not fall substantially in response to the demand shock is more consistent with Hanson operating in a competitive market than as a monopoly (with absolute market power). It is unclear, therefore, on what grounds the CC bases its expectation or its conclusion that this pattern "*points towards a degree of pricing power by Hanson*".

6.4 Further, we note that the CC fails to set out any benchmark for what *"a substantial reduction"* would be in this context. This makes it impossible for Hanson to defend itself.

7. INCENTIVES

7.1 The CC argues there are two reasons why GGBS prices are higher when there is a single producer, and higher still in this case given that Hanson is a cement producer, compared to the situation of two competing GGBS producers or a GGBS producer unaffiliated with cement.

7.2 First, the CC argues that, given Hanson provides the majority of GGBS in GB, Hanson's incentive is to set prices at the point where GGBS demand is elastic, and *"therefore prices may be higher than if there were competing producers"*[36]. The CC notes that this effect is "*standard economic price theory and would apply to any owner in the same position as Hanson (whether or not a cement producer)*".

7.3 As explained above, Hanson does not believe that the CC has established Hanson as a price setter that dominates a narrow GGBS market. However, it does agree that, given the binding GGBS supply constraints combined with significant cementitious product demand, the producer(s) of GGBS has/have an incentive to price up to the level of the next best substitute, which is the next most efficient supplier of cementitious product not currently supplying the market. However, this strategy prevails whether there is one producer (Hanson) or several producers. Therefore, the CC is incorrect in arguing this effect "*leads to higher GGBS prices than if there were several competing … producers of GGBS*"[37]. Given the supply constraints, a greater number of producers would not necessarily reduce the price.

7.4 Second, the CC argues that Hanson's presence in both GGBS and cement supply means that Hanson has a weaker incentive to lower its GGBS prices because Hanson would not want to 'cannibalise' its cement sales. The CC fails to quantify the magnitude of this effect; and, in fact, it seems likely that this effect would, at most, be weak.

7.5 The CC argues that the effects arises because, <u>were Hanson to reduce its GGBS price</u>, it would expect three steps to occur:

i) *An increase in GGBS sales which would add to its GGBS profits, the scale of the increase depending on price elasticity of demand.* The CC's thinking is, however, confused here. If, as the CC suggests, Hanson were a (near) monopolist in GGBS, then either Hanson would set the monopoly price (which would mean lowering

[35] APF, paragraph 63.
[36] APFs, paragraph 72.
[37] *Ibid*, paragraph 72.

price would not be considered profit-maximising) or a price below the GGBS monopoly level if the monopoly price was not open to Hanson because of a constraint from another cementitious product (Hanson again would not find it profit-maximising to reduce GGBS price from this point). Therefore, for this effect to be in Hanson's interests, the CC seems to be suggesting that Hanson is already above the GGBS monopoly price, at a point where it has an interest in reducing GGBS price but is dissuaded from doing so because of the risk of cannibalising cement sales. This is remarkable for the CC to assert.

ii) *A fall in demand for CEM I through "some substitution effect".* The CC says it has no estimates on the magnitude of substitution, but the pricing analysis "*suggest relatively high cross-elasticities at current GGBS and CEM I prices*"[38]. However, the substitution would not be one-for-one for Hanson. The CC suggests Hanson could lose cement sales in proportion to its market share in cement (i.e. 20%). Therefore, Hanson would lose 1 out of every 5 tonnes of cement displaced by the lower GGBS price. This would moderate the scale of this effect.

iii) *Hanson would lose its cement margin on those tonnes displaced by the additional GGBS sales.* The scale of this effect would depend on the relative GGBS and cement margins. If cement margin is higher, then the loss of sales of cement will have a greater negative impact on profits than the additional sale of GGBS. The CC says it found that unit margins over variable costs for cement are similar "*though slightly higher*" than the GGBS variable margins. The CC's comparison is however incomplete. It does not factor in the additional revenues that result from carbon permits unused because of the reduced tonne of cement. And, if the CC's tacit coordination theory in cement were true, then cement margin would fall further after Lafarge's cement plant divestments and the behavioural remedies. Therefore, again this would soften the scale of the alleged effect.

7.6 Therefore, it seems highly unlikely that the alleged incentive effect from Hanson owning both GGBS and cement, will arise or be material. The CC has not quantified the magnitude of the effect. Therefore, the CC has not established that reducing Hanson's participation in the GGBS supply chain would, on its own, lead to any significant change in GGBS prices.

8. CUSTOMER DETRIMENT

8.1 The CC estimates, based on its profitability analysis, the overcharge in GGBS prices to be £11 per tonne for the period 2007 to 2012. This the CC argues: "*is likely to represent most of the detriment on cement prices arising from the GGBS-related AEC, though there is also additional detriment, which is incorporated in cement profitability*".

8.2 However, as explained above, the differential between ROCE and WACC can be explained by benign and valid reasons – e.g. the superior efficiency of GGBS production compared to cement production – reasons that would exist even in a competitive market. Therefore, it is incorrect to label this differential (in whole) as "*detriment*".

8.3 Further, this (alleged) detriment would not necessarily disappear if the CC imposed divestments and so created more GGBS players, as all these players would still be bound by the supply constraint. Therefore, the profit maximising GGBS price would still be at the level of the next-best alternative. Therefore, the CC cannot simply assert that divestments to create more players will quickly translate into lower prices.

8.4 The CC has not established that, even after divestments, the market structure created will necessarily be conducive to significantly lower prices:

i) **Binding supply constraints**: We have explained why the two (or at most three) GGBS producers, given the binding constraints on the supply of GBS and blast

[38] *Ibid*, paragraph 76c.

furnace slag further up the chain, will face the same incentives as a single producer to price at the level of the next-best alternative product.

ii) **Market power is exercised further up the chain**: The owners of the essential materials in the GGBS supply chain are the steelworks and the owners of the granulators (potentially the same entity post Lafarge's divestments). These operators would be in a position to raise price to the downstream GGBS producers to such an extent that the end price of GGBS would remain inflated. Therefore, the alleged market power would simply move upstream. Evidence of this upstream market power is clearly shown in the comments by SSI to the CC that it could refuse to supply BFS to an owner of the granulator if it was minded to[39].

iii) **Highly concentrated market**: If the CC were to conclude that the market is 'GGBS only' (contrary to the facts), then the market created by the divestments would continue to be highly concentrated and so prices would not necessarily fall significantly.

8.5 Indeed, there is a significant risk the divestments may instead increase cost in the system by removing the synergies that exist today due to Hanson being able to manage its production and product quality over a portfolio of plants. By segmenting the portfolio of plants the CC would remove the ability of the producers to diversify risk across the portfolio e.g. of a blast-furnace outage at the steelworks at which the plant is located. There is also the risk that Hanson itself will be stripped of a viable business post divestments, which will strand its assets. This will drive up costs and weaken Hanson's ability to provide a competitive constraint.

[39] See **Annex A** to this paper, Section 9.3, for the comments from SSI.

ANNEX A – GBS SUPPLY CHAIN

Please note that this annex is based on information from the Disclosure Room and should not be published.

1. **GGBS SUPPLY CHAIN**

1.1 Annex F and Annex G to Appendix 6 of the APF explain the production capacity across the GGBS supply chain. There are three key levels:

- Blast-furnace slag ("BFS") production at the steelworks;
- The Granulated Blast-furnace Slag ("GBS") production by Lafarge Tarmac;
- The grinding plants owned by Hanson to produce GGBS.

BFS

1.2 The three integrated steelworks in operation in GB are:

- The Port Talbort steelworks and the Scunthorpe steelworks owned by Tata. Tata explained to the CC that at a maximum these two steelworks could produce [✂] of BFS per annum ("p.a.").
- The Teesside steelworks owned by SSI. SSI explained that the current maximum this facility could produce was [✂] of BFS. However, SSI told the CC it was aiming to increase iron production from 3.0 Mt p.a. currently to between [✂] "*in the coming years*". If this increase in iron production were achieved then BFS supply would increase. Assuming SSI achieved the upper bound of its iron production ([✂]) this would lead to maximum BFS capacity at the site of around [✂] p.a.

1.3 Therefore, **the current absolute theoretical maximum for BFS in GB is** [✂]. This may increase to just over [✂] of BFS in the coming years if SSI is successful in its expansion plans. However, actual production has been very significantly beneath the theoretical maximum at below [✂]. For further details on production see Table.

1.4 There has clearly been significant disruption in the supply of BFS, as the CC notes in the footnotes to Table 1 in Annex F:

- *"One of the blast furnaces (also known as furnace 'Number 4') at the Port Talbot steelworks was offline between January 2009 and October 2009";*
- *"One of the blast furnaces (also known as 'Queen Bess') at the Scunthorpe steelworks was offline between January 2009 and December 2009; and since October 2011, Lafarge Tarmac told us that the blast furnace would resume in the final half of 2013. We have assumed that this blast furnace is active given its imminent reactivation"; and*
- *"All blast furnace activity at the Teesside steelworks ceased from March 2010 to April 2012, when the blast furnace was restarted".*

1.5 Further the steel industry in the UK is under continued significant pressure. This is demonstrated by the announcement on 29 October 2013 that Tata will be cutting a further 500 jobs in the UK (with the majority at Scunthorpe)[40], having cut around 900 jobs in 2012.

1.6 Karl Koehler, chief executive of Tata Steel's European operations is quoted by the Financial Times as saying: *"European steel demand this year is expected to be only two-*

[40] http://www.tatasteeleurope.com/en/news/news/2013-long-products-business-restructuring

thirds of pre-crisis levels after falls in the past two years …. On top of the challenging economic conditions, rules covering energy and the environment in Europe and the UK ***threaten to impose huge additional costs on the steel industry***"[41]. A Tata Director, Jon Bolton, is quoted by the BBC as saying: *"If you take just the construction sector, which is the market we supply mostly, that's reduced by 50% since the peak in 2007. We see that level* ***not recovering for at least another 10 years****"* (emphasis added)[42].

1.7 Therefore, continued low demand coupled with increasing costs will put further pressure on steel production. This suggests production will not rebound to pre-crisis levels in the near term. Indeed, Peter Fish, Managing Director of the international steel consultancy Meps, is quoted in the Financial Times article as saying: *"There won't be a wholesale closure of the British steel industry,* ***but individual plants might close****, largely as a result of pressure from China"* (emphasis added).

GBS

1.8 Lafarge Tarmac has granulators at each of the three steelworks. The absolute maximum GBS capacity across these plants available to Lafarge Tarmac is 2,725 kt p.a.

1.9 Lafarge Tarmac, however, told the CC that "*Total capacity figures represent 'nameplate capacity' …. actual capacity would be lower due to the blast furnace. It added that it had a target of producing at around 85 per cent of nameplate capacity*" (Table 1, Annex F).

1.10 Therefore, it is likely that **maximum actual capacity for GBS production is likely to be around 2,316 kt p.a**. This indicates that the granulator capacity would be a binding constraint on GBS production even if the steelworks ran at full capacity.

1.11 Further, Hanson has explained that there is typically a 90% conversion ratio between GBS and GGBS i.e. for every tonne of GBS, 0.9 tonnes of GGBS is produced. Therefore, the operational maximum of 2,316 kt p.a. of GBS is likely to produce only around 2,084 kt p.a. of GGBS. Table 2 shows that in recent years, GBS production has been very significantly below the operational capacity.

GGBS stockpile

1.12 Please see Annex B for a detailed description on stockpiles.

1.13 Annex H shows that **the GBS stockpile was only around** [✂] **at the end of FY12**.

1.14 This is very significantly below the original estimates from Lafarge Tarmac. This is not unexpected: Lafarge Tarmac has a clear and strong incentive to overstate the size of the stockpile, today and in the future, as it is hoping the CC will focus on a GGBS remedy instead of a cement divestment remedy that would affect it more heavily.

1.15 Table 1 shows that the stockpile has averaged under [✂] across the 5 years of data shown. Further, the usable GBS in these stockpiles will in fact be lower, due to the quality of the GBS degrading over time.

Table 1: GBS Stockpile

[41] Financial Times, "*Tata Steel to cut 500 jobs in northeast England*", http://www.ft.com/cms/s/0/d3f1ef6a-40b0-11e3-8775-00144feabdc0.html?ftcamp=published_links%2Frss%2Fhome_uk%2Ffeed%2F%2Fproduct#axzz2j9Iqschj

[42] BBC, "*Tata Steel cuts 500 jobs in Scunthorpe, Workington and Teesside"*, http://www.bbc.co.uk/news/uk-england-24725339

	2008	2009	2010	2011	2012
Port Talbot	[✂]	[✂]	[✂]	[✂]	[✂]
Scunthorpe	[✂]	[✂]	[✂]	[✂]	[✂]
Teesside (pellites)	[✂]	[✂]	[✂]	[✂]	[✂]
Teesside (GBS)	[✂]	[✂]	[✂]	[✂]	[✂]
Total (Kt)	[✂]	[✂]	[✂]	[✂]	[✂]

Source: Annex H, Table 1

1.16 Lafarge Tarmac argues that in future the stockpile will grow to around 800 kt. Lafarge's hypothesis relies on increasing BFS activity when as shown above BFS activity is under pressure. This figure therefore remains an estimate only. The table shows also data from 2008 when we understand that all three steelworks were in operation and this indicates that the stockpile was not at a significantly higher level despite much higher levels of BFS activity. We attach to this response further evidence that the CC has fundamentally misinterpreted the 'incentive' to stockpile as a result of an alleged AEC.[43]

GGBS

1.17 Hanson has five grinding facilities. Three are active: Port Talbot, Purfleet and Scunthorpe. The maximum total grinding capacity of these three active facilities is [✂]. of GGBS. However, **this overstates the operating capacity of Purfleet**. The CC must take into account, therefore, that the current operational capacity of the 3 plants is much lower at only [✂]

1.18 Hanson previously, correctly, informed the CC that the maximum grinding capacity of Purfleet is [✂]. However, maximum operating capacity of the site is currently much lower, **at** [✂], than the capacity of the grinder. Indeed, Purfleet's operating record is 520kt in 2001. The lower maximum operating capacity is due to constraints on getting GBS in to, and GGBS out of, the Purfleet site :

- First, the wharf through which GBS is imported is shallow and allows in ships of only between [✂] tonnes. This together with tidal patterns means that there is a constraint on the amount of GBS that can be imported into the site. The only way to address this would be further dredging of the Thames to allow access for larger ships. While this further dredging is, in theory, possible it would take time and cost. Hanson would also need to improve the capacity of the 'ship to shore' facilities and storage facilities which are currently configured for smaller import quantities.

- Second, the bridge over which GGBS is exported from the site has a maximum weight capacity which limits the size of trucks that can export the GGBS. To operate near maximum grinding capacity, this bridge would need to be strengthened and expanded. This would require approximately £[✂] in capital investment and a period during which the site was closed (as no GGBS could be transported across the bridge)

1.19 Therefore, the current maximum operating capacity of Purfleet is [✂] significantly lower than the nameplate grinding capacity.

1.20 Hanson's maximum GGBS production with its 3 active sites would be under [✂]. This could be increased only if there was capital investment in either restarting the mothballed sites (Llanwern and Teesside) or upgrading Purfleet. Increasing capacity would, however, be expensive for Hanson (and may be difficult in light of the short and uncertain lease

[43] PDR paragraph 3.287

arrangements at Llanwern and Teesside). If all this de-mothballing and de-bottlenecking were to take place production could, in theory, expand to a maximum of [✂] p.a.

Analysis of constraints

1.21 The CC acknowledges that the capacity figures stated "***represent a theoretical maximum***" (Annex F, para 11). Hanson agrees that the supply chain could not operate at these maximum levels and has never done so in the past. As noted, the constraint on BFS at the start of the chain (with actual production being under [✂] per annum in recent years) immediately limits the volume of GGBS that can be produced.

1.22 The maximums, however, illustrate where bottlenecks occur. If the steelworks ran at absolute capacity (even with the SSI expansion) AND the granulators ran at absolute maximum, then the maximum amount of GBS would be around [✂]. This results in two scenarios:

- The GGBS grinders would be the bottleneck if Hanson used only its 3 active sites as currently configured. Total GGBS production would be [✂] p.a..

- The granulators would be the bottleneck if Hanson de-mothballed the two additional grinders and upgraded Purfleet, with the maximum GGBS production then being around [✂], or more likely around [✂] when accounting for a 90% conversion rate. To go beyond this production there would need to be investment in new granulator capacity by Lafarge Tarmac (and potentially new grinders) or imports of GBS.

1.23 Therefore, based on the current configuration of the supply chain, the absolute maximum GGBS production would be [✂]. Were Hanson to invest in de-mothballing and de-bottlenecking this may rise to **around** [✂]**.**. The constraints would be binding even if SSI expands its iron production.

1.24 **In reality, however, actual production will be lower than the theoretical maximums.** This is demonstrated by Table 2 below from the Data Room showing actual production at each level of the chain.

Table 2: Actual production, kilo tonnes per annum

Plant		2007	2008	2009	2010	2011	2012
Port Talbot*	Total BFS purchased				[✂]	[✂]	[✂]
	BFS volumes purchased to produce GBS				[✂]	[✂]	[✂]
	BFS volumes purchased to produce air-cooled slag				[✂]	[✂]	[✂]
	GBS sales				[✂]	[✂]	[✂]
	Air-cooled slag				[✂]	[✂]	[✂]
Scunthorpe*	Total BFS purchased				[✂]	[✂]	[✂]
	BFS volumes purchased to produce GBS				[✂]	[✂]	[✂]
	BFS volumes purchased to produce air-cooled slag				[✂]	[✂]	[✂]
	GBS sales				[✂]	[✂]	[✂]
	Air-cooled slag				[✂]	[✂]	[✂]
Teesside*	Total BFS purchased				[✂]	[✂]	[✂]
	BFS volumes purchased to produce GBS				[✂]	[✂]	[✂]
	BFS volumes purchased to produce air-cooled slag				[✂]	[✂]	[✂]
	GBS sales				[✂]	[✂]	[✂]
	Air-cooled slag				[✂]	[✂]	[✂]
Totals*	Total BFS****				[✂]	[✂]	[✂]
	Total BFS for GBS				[✂]	[✂]	[✂]
	Sales of GBS				[✂]	[✂]	[✂]
Lafarge Tarmac**	GBS Production	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
	GBS Sales	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
Hanson***	GGBS	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]

Sources:
* Annex G: "Table 1: Lafarge Tarmac: BFS and steel slag products, 2010 to 2012."
** Annex G: "Table 3: Lafarge Tarmac: GBS operations' GBS production and sales volumes, 2007 to 2012."
*** Annex G: "Table 5 GGBS production volumes, 2007 to 2012"
**** Total BFS purchased by Lafarge will equal total BFS produced by the blast furnaces because of obligations on Lafarge Tarmac. Tata explained in paragraph 3.452 of PDR: [✂]
Note: The data from Lafarge Tarmac on GBS production in Table 1 and Table 3 is inconsistent; therefore, both lines of data are shown above.

1.25 Key observations from the actual production figures are:

- BFS production has been below [✂] in each of the three years shown. This immediately constrains the amount of GGBS that can be produced.

- In each year, Lafarge has chosen to use around [✂] of the BFS it purchases for GBS. The remainder is air-cooled. Tarmac have previously explained to Hanson

that they will granulate slag (rather than air cool) whenever possible i.e. they seeks to maximise the amount of BFS turned into GBS. There are a number of technical reasons for this choice[44]. It is noteworthy also that Annex G Table 1 suggests that "*per tonne of BFS input*" this air-cooled slag earns Lafarge [✂] revenue than GBS. Therefore, it is not immediately clear that Lafarge, or another owner of the granulator, could increase GBS production above what is already being produced (as it will already be seeking to maximise production).

- Lafarge's GBS production has consistently been significantly below its theoretical capacity. Even at the height of the GGBS market pre-crisis (2007) it was at under [✂] capacity – this shows that its nameplate capacities are notional maximums and actual production is well within these levels.

- Hanson has consistently converted [✂] of the GBS produced by Lafarge into GGBS and in several years has had to rely on Lafarge's stockpiled GBS and imports. The data shows that there is no basis for the CC to argue that Hanson restricts GGBS production. In fact Hanson has maximised GGBS production with the GBS supplied to it by Lafarge Tarmac.

1.26 The above suggests that there is no basis on which to conclude that GGBS supply could be increased significantly given constraints within the existing supply chain.

1.27 Finally, Hanson asks the CC to pursue further data from Lafarge and the steelworks for the period 2007 to 2009.

2. TATA AND SSI COMMENTS

2.1 Certain comments were redacted from the public version of the PDR. We note the following from the Data Room:

[✂]

[44] Hanson understands that key reasons include: (1) air-cooled slag has higher sulphur content than granulate. Environmental regulation puts restrictions on the steelwork's emissions of sulphur (including through blast furnace slag). Therefore, the steelworks would emphasise as much slag as possible being put to granulation ahead of air-cooling; (2) the ease of granulate handling and processing compared to air cooled which requires secondary handling, crushing and storage.

ANNEX B

[✂]