IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF PENNSYLVANIA

RESCO PRODS., INC.,	)	
	)	
Plaintiff,	)	
	)	
vs.	)	Civ. A. No. 06-235
	)	
BOSAI MINERALS GRP., et al.,	)	
	)	
Defendants.	)	

MEMORANDUM OPINION

CONTI, Chief District Judge

I. INTRODUCTION

Pending before the court is a motion to exclude expert testimony and reports (ECF No. 250), and brief in support with accompanying exhibits (ECF No. 251), filed by defendants Bosai Minerals Group ("Bosai") and CMP Tianjin Co. ("Tianjin") (collectively "defendants") under Federal Rule of Evidence 702 ("Rule 702").

In this federal antitrust class action, plaintiff Resco Products, Inc. ("plaintiff") alleges defendants conspired to fix the price and control the supply of refractory grade bauxite[1] ("RGB") sold to plaintiff and others in the United States between 2003 and 2009, in violation of the Sherman Act, 15 U.S.C. § 1. (ECF No. 92.)

In this Rule 702 motion, defendants seek to exclude the expert testimony and reports of Dr. Russell Lamb ("Dr. Lamb"), a damages expert retained by plaintiff.

[1] Bauxite is a naturally occurring mineral used to produce alumina for refining into aluminum metal, refractories for steel, glass, and cement, electronic components, and other uses. (ECF No. 251 at 2 n.1.)

Plaintiff filed a brief in opposition to defendants' Rule 702 motion, with accompanying exhibits. (ECF No. 254.) On April 10, 2015, the court held a hearing at which both parties presented oral argument with respect to defendants' Rule 702 motion. *See* (ECF No. 269.)

Having been fully briefed and argued, defendants' Rule 702 motion to exclude Dr. Lamb's expert opinion is now ripe for disposition. Because defendants' objections go to the weight of the expert's testimony and not the admissibility of the testimony, the court will deny defendants' motion to exclude Dr. Lamb's expert reports and testimony under Rule 702.

II. STANDARD OF REVIEW

Rule 702 governs the admissibility of expert testimony and provides:

> A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:
>
> > (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
> >
> > (b) the testimony is based on sufficient facts or data;
> >
> > (c) the testimony is the product of reliable principles and methods; and
> >
> > (d) the expert has reliably applied the principles and methods to the facts of the case.

FED. R. EVID. 702. Pursuant to *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), district courts must act as gatekeepers to "ensure that any and all scientific

testimony or evidence admitted is . . . reliable."[2] *Id.* at 589. The United States Court of Appeals for the Third Circuit explained that Rule 702 "embodies a trilogy of restrictions" that expert testimony must meet for admissibility: (A) qualification; (B) reliability; and (C) fit. *Schneider ex rel. Estate of Schneider v. Fried*, 320 F.3d 396, 404 (3d Cir. 2003). The party offering the expert testimony has the burden of establishing each requirement by a preponderance of the evidence. *In re TMI Litig.*, 193 F.3d 613, 663 (3d Cir. 1999).

A. Qualification

An expert witness's qualification stems from his or her "knowledge, skill, experience, training, or education." FED. R. EVID. 702. The witness must, therefore, have "specialized expertise." *Schneider*, 320 F.3d at 405. The Third Circuit Court of Appeals interprets the qualification requirement "'liberally,' holding that 'a broad range of knowledge, skills, and training qualify an expert as such.'" *Calhoun v. Yamaha Motor Corp., U.S.A.*, 350 F.3d 316, 321 (3d Cir. 2003) (quoting *In re Paoli R.R. Yard PCB Litig. (Paoli II)*, 35 F.3d 717, 741 (3d Cir. 1994)).

B. Reliability

In *Daubert*, the Supreme Court stated that the district court's gatekeeper role requires "a preliminary assessment of whether the reasoning or methodology underlying the testimony is . . . valid and of whether the reasoning or methodology properly can be applied to the facts in issue." *Daubert*, 509 U.S. at 592–93. While the Court noted in

[2] While *Daubert* applied exclusively to scientific testimony, *see Daubert*, 509 U.S. at 590 n.8, the United States Supreme Court later extended the district court's gatekeeper function to all expert testimony. *Kuhmo Tire Co. v. Carmichael*, 526 U.S. 137, 147 (1999).

Daubert that district courts are permitted to undertake a flexible inquiry into the admissibility of expert testimony under Rule 702, the Third Circuit Court of Appeals enumerated the following eight factors a district court may examine:

> (1) whether a method consists of a testable hypothesis;
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> (2) whether the method has been subjected to peer review;
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> (3) the known or potential rate of error;
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> (4) the existence and maintenance of standards controlling the technique's operation;
>
> (5) whether the method is generally accepted;
>
> (6) the relationship of the technique to methods that have been established to be reliable;
>
> (7) the qualifications of the expert witness testifying based on the methodology; and
>
> (8) the non-judicial uses to which the method has been put.

Paoli II, 35 F.3d at 742 n.8. This list of factors is a "convenient starting point" but is "neither exhaustive nor applicable in every case." *Kannankeril v. Terminix Int'l, Inc.*, 128 F.3d 802, 806–07 (3d Cir. 1997).

Under these factors, experts are not permitted to engage in a "haphazard, intuitive inquiry" but must explain the research and methodology they employed in sufficient detail to allow the other party's expert to test that hypothesis. *Oddi v. Ford Motor Co.*, 234 F.3d 136, 156 (3d Cir. 2000). Where an expert fails to use standards to control his or her analysis, "no 'gatekeeper' can assess the relationship of [the expert's] method to other

methods known to be reliable and the non-judicial uses to which it has been put." *Id.* at 158.

"The evidentiary requirement of reliability is lower than the merits standard of correctness." *Paoli II*, 35 F.3d at 744.

> As long as an expert's scientific testimony rests upon "good grounds, based on what is known," it should be tested by the adversary process—competing expert testimony and active cross-examination—rather than excluded from jurors' scrutiny for fear that they will not grasp its complexities or satisfactorily weigh its inadequacies.

United States v. Mitchell, 365 F.3d 215, 244 (3d Cir. 2004) (quoting *Ruiz-Troche v. Pepsi Cola of P.R. Bottling Co.*, 161 F.3d 77, 85 (1st Cir. 1998)).

C. Fit

The Rule 702 requirement that testimony "will help the trier of fact to understand the evidence or to determine a fact in issue" is called the "fit" requirement. Fit requires a "connection between the scientific research or test result to be presented and particular disputed factual issues in the case." *Paoli II*, 35 F.3d at 743. "'Fit is not always obvious, and scientific validity for one purpose is not necessarily scientific validity for other, unrelated purposes.'" *Id.* (quoting *Daubert*, 509 U.S. at 591). The standard for fit is "not that high," though it is "higher than bare relevance." *Id.* at 745.

III. DISCUSSION

Dr. Lamb is an economist and the senior vice president of a consulting firm that provides economic research and analysis to clients in the United States and abroad. In this case, plaintiff retained Dr. Lamb to estimate damages on a class-wide basis. Dr. Lamb produced an expert report for plaintiff (the "Expert Report") (ECF No. 251-2)

dated September 29, 2014, and a supplemental report (the "Supplemental Report") (ECF No. 251-3) dated December 15, 2014.

The parties do not dispute that Dr. Lamb is "qualified" as an expert and that his opinion "fits" this case under Rule 702—*i.e.*, it will help the trier of fact understand the evidence and determine facts in issue concerning class-wide damages, should plaintiff prove liability. *See Schneider*, 320 F.3d at 404. The court, therefore, addresses only whether Dr. Lamb's expert opinion is "reliable" under Rule 702 and *Daubert*. *See id.*

A. Dr. Lamb's Methodology and Conclusions

In his Expert Report, Dr. Lamb performed a multiple regression analysis to control for independent price-influencing variables, calculated an "overcharge," and applied the overcharge to gross Chinese RGB export sales to estimate class-wide and plaintiff-specific damages caused by defendants' alleged price-fixing conspiracy. He "assume[d]" defendants conspired "to fix prices and restrain [the] supply of [RGB] products in the [United States]" from 2003 to 2009. (ECF No. 251-2 at 6 ("In . . . my [Expert Report,] I assume that the allegations contained in [plaintiff's] complaint are in fact true.").)

Dr. Lamb calculated the "overcharge" plaintiff paid for exported RGB—*i.e.*, the difference between the actual (assumedly conspiratorial) RGB export price from 2003 to 2009 and the RGB export price that would have prevailed but for the alleged conspiracy. *See* (*id.* at 13.) To calculate the overcharge, Dr. Lamb applied a "before-during" benchmark analysis, in which he compared the RGB export price from before the alleged

conspiracy to the export RGB price that prevailed during the alleged conspiracy.[3] (*Id.* at 13–14.)

To control for external factors influencing the demand, production cost, supply—and, thus, price—of exported RGB within his benchmark inquiry, Dr. Lamb used an econometric method known as multiple regression analysis, in which the export price of Chinese RGB acted as the "dependent variable" and a variety of independent price-influencing factors[4] acted as "explanatory variables." (*Id.* at 14–15.)

To arrive at a conclusion with respect to damages, Dr. Lamb multiplied the total volume of RGB export sales occurring during the class period by the overcharge to estimate that class members suffered: (1) $27.47 million in aggregate damages from defendants' alleged collusion; and (2) $2.46 million in damages from Bosai and $2.19 million in damages from Tianjin from purchasing exported Chinese RGB. (*Id.* at 24.)

B. The "reliability"[5] of Dr. Lamb's multiple regression analysis

[3] For the "before" and "during" periods of his benchmark analysis, Dr. Lamb used, respectively, March through December 2002 and January 2003 through March 2009. (ECF No. 251-2 at 14.)

[4] This dispute centers around Dr. Lamb's inclusion and omission of certain of these independent price-influencing factors in his regression analysis. *See infra* section III.B

[5] Defendants argue in the alternative that Dr. Lamb's testimony is irrelevant under Federal Rule of Evidence 402 ("Rule 402") and, thus, inadmissible because he assumes the allegations in plaintiff's amended complaint are true in applying his model and offers no proof with respect to defendants' liability. *See* (ECF No. 251 at 1, 4–5.)

"Federal courts applying the standards established by Rule 702 . . . have permitted damages experts to make the assumptions of fact necessary to render a sound opinion, as long as such assumptions have a reasonable basis in the available record and are disclosed to the finder of fact." *Brill v. Marandola*, 540 F. Supp. 2d 563, 568 (E.D. Pa. 2008).

In this Rule 702 motion, defendants do not dispute the general acceptance of multiple regression analysis as a method of estimating damages in antitrust litigation. Defendants argue, rather, that the court must exclude Dr. Lamb's expert opinion because he omitted from his regression analysis certain independent explanatory variables that influenced Chinese RGB export prices from 2003 to 2009. *See* (ECF No. 250 at 1.) In particular, defendants argue Dr. Lamb's expert opinion is unreliable under Rule 702 and *Daubert* because he omitted variables to account for: (1) the effect of the Chinese government's export quota; (2) the increase in Chinese domestic RGB prices; and (3) the Chinese government's closure of bauxite mines and kilns. *See* (ECF No. 251 at 6–13.)

In response, plaintiff argues Dr. Lamb's expert opinion is reliable and admissible under Rule 702 and *Daubert*. In particular, plaintiff argues: (1) any purported errors in omitting explanatory variables from a regression analysis go to the expert opinion's probative value, not its admissibility; and (2) Dr. Lamb considered and rejected defendants' proposed variables in constructing his regression analysis, which has a strong statistical explanatory value. *See* (ECF No. 254.)

In assuming a conspiracy in his Expert Report, Dr. Lamb makes clear that his opinion is relevant only with respect to class-wide damages and to whether damages can be estimated on a class-wide basis. (ECF No. 251-2 at 6.) Plaintiff expressly acknowledges that Dr. Lamb's expert opinion concerning damages is irrelevant with respect to defendants' liability and cannot be offered as proof thereof. *See* (ECF No. 254 at 3–4.) For these reasons, defendants' relevancy argument under Rule 402 does not provide a basis upon which to exclude Dr. Lamb's expert opinion. If, however, plaintiff fails as a matter of law to prove illegal collusion at the summary judgment or trial phase, Dr. Lamb's expert opinion estimating damages will no longer "fit" this case, and his expert opinion will be excluded under Rule 702. *See* FED. R. EVID. 702(a) (providing that the expert's opinion must "help the trier of fact understand the evidence and determine facts in issue").

The court will address: (1) the legal standard under Rule 702 for assessing the "reliability" of a multiple regression analysis; and (2) the court's conclusions with respect to each of defendants' contentions and the "reliability" of Dr. Lamb's regression analysis.

1. The "reliability" of a regression analysis under Rule 702

As noted previously, the party offering an expert opinion under Rule 702 bears the burden of establishing its "reliability" by a preponderance of the evidence. *See In re TMI Litig.*, 193 F.3d at 663. Plaintiff must prove by a preponderance of the evidence that Dr. Lamb's regression analysis is "reliable" under Rule 702 and *Daubert*. *See id.*

Multiple regression analysis is a statistical technique designed to determine the effect independent explanatory variables have on a single dependent variable. *In re Flat Glass Antitrust Litig.*, 191 F.R.D. 472, 486 (W.D. Pa. 1999); 1 Mod. Sci. Evidence § 7:1 (2014) ("Multiple regression [analysis] involves a variable to be explained—called the dependent variable—and explanatory variables that are thought to produce or be associated with changes in the dependent variable."). In simple terms, the "purpose of a regression analysis is to organize and explain data that may appear to be random." *Bazemore v. Friday*, 478 U.S. 385, 403 n.14 (1986) (Brennan, J., joined by all members of the Court, concurring in part) (citing Franklin M. Fisher, *Multiple Regression in Legal Proceedings*, 80 COLUM. L. REV. 702, 705–07 (1980)). Regression analysis allows an expert to test the causal relationship, if any, between the independent explanatory variables and the dependent variable. *In re Flat Glass*, 191 F.R.D. at 486. Relevant to the instant case, multiple regression analysis—when performed properly—is a mainstream tool in economic study and an accepted method of estimating damages in antitrust

litigation. *Id.* (citing *Petruzzi's IGA Supermarkets, Inc. v. Darling-Delaware Co.*, 998 F.2d 1224, 1238 (3d Cir. 1993)).

The United States Supreme Court has held that "[w]hile the omission of variables from a regression analysis may render the analysis less probative than it otherwise might be, it can hardly be said, absent some other infirmity, that an analysis which accounts for the major factors 'must be considered unacceptable as evidence'. . . ." *Bazemore*, 478 U.S. at 400 (quoting *Bazemore v. Friday*, 751 F.2d 662, 672 (4th Cir. 1984), *aff'd in part, vacated in part*, 478 U.S. 385 (1986)). "Normally, failure to include [explanatory] variables will affect the analysis' probativeness, not its admissibility."[6] *Id.*; *see Eastland v. Tenn. Valley Auth.*, 704 F.2d 613, 621 (11th Cir. 1983) ("The probative value of a multiple regression analysis depends in part upon . . . the inclusion of all the major variables likely to have a large effect on the dependent variable[]. . . .").

"There may, of course, be some regressions so incomplete as to be inadmissible as irrelevant." *Bazemore*, 478 U.S. at 400 n.10. Neither the Supreme Court nor the Third Circuit Court of Appeals has yet addressed explicitly the circumstances under which the court must deem a regression analysis "so incomplete" as to be irrelevant. District courts within the Third Circuit have, however, held that while the party proffering the regression analysis must establish its reliability by a preponderance of the evidence, the "party challenging the admissibility of a multiple regression analysis must show that the

[6] "Importantly, it is clear that a regression analysis that includes less than 'all measurable variables' may serve to prove a plaintiff's case." *Bazemore*, 478 U.S. at 400. "Whether . . . such a regression analysis does carry the plaintiffs' ultimate burden will depend in a given case on the factual context of each case in light of all the evidence presented by both the plaintiff and the defendant." *Id.*

[omission of explanatory] factors it contends ought to have been included would weaken the results of the analysis." *In re Indus. Silicon Antitrust Litig.*, Civ. A. No. 95-1131, 1998 WL 1031507, at *3 (W.D. Pa. Oct. 13, 1998) (citing *Palmer v. Schultz*, 815 F.2d 84, 101 (D.C. Cir. 1987)). "In other words, a party cannot successfully challenge the admissibility of a regression analysis by simply pointing to a laundry list of possible independent variables that were not included in the study." *Id.* "Rather, the party must introduce evidence to support its contention that the failure to include those variables would change the outcome of the analysis." *Id.*

In the context of price-fixing cases, "'[m]erely pointing to economic conditions that may affect the dependent variable is not enough to call into question the reliability of an econometric model.'" *In re Linerboard Antitrust Litig.*, 497 F. Supp. 2d 666, 678 (E.D. Pa. 2007) (quoting *In re Polypropylene Carpet Antitrust Litig.*, 93 F. Supp. 2d 1348, 1365 (N.D. Ga. 2000)). "'Unless the party challenging a regression [analysis] proffers evidence that an omitted variable is correlated with the [dependent] variable and is likely to affect the result of the regression analysis, the [court] will not find that omission of the variable implicates the reliability of the model.'" *Id.* (quoting *In re Polypropylene Carpet*, 93 F. Supp. 2d at 1365). "It is only the rare case where 'regressions are so incomplete as to be irrelevant' and the expert's decisions regarding control variables are the basis to exclude the analysis." *Gutierrez v. Johnson & Johnson*, Civ. A. No. 01-5302, 2006 WL 3246605, *5 (D.N.J. Nov. 6, 2006) (quoting *Bazemore*, 478 U.S. at 400 n.10).

2. The "reliability" of Dr. Lamb's regression analysis

The court is satisfied that plaintiff showed by a preponderance of the evidence that Dr. Lamb's multiple regression analysis is "reliable" and, thus, admissible under Rule 702 and *Daubert*. *See In re TMI*, 193 F.3d at 663. The record shows Dr. Lamb examined carefully the industrial background surrounding the global market for Chinese RGB, *see* (ECF No. 251-2 at 7–13), and included in his regression analysis "major" factors that influenced the price of Chinese export RGB during the class period. *See Bazemore*, 478 U.S. at 400.

On the demand side, Dr. Lamb included variables to control for Chinese and United States steel production;[7] the value of the Chinese yuan vis-à-vis the United States Dollar; and the value of the Chinese yuan vis-à-vis "a broad basket of world currencies."[8] (ECF No. 251-2 at 16–18.)

[7] Dr. Lamb included variables for steel production because RGB is "predominantly consumed in the manufacture of steel." (ECF No. 251-2 at 16.) Dr. Lamb observed that "Chinese steel production experienced particularly rapid growth and accounted for more than 40 percent of world steel production by the end of the class period" and that the United States "consumes roughly half of the western world's total [RGB], predominantly in the production of iron and steel." (*Id.* at 16–17.) The extent to which Chinese and United States steel production are sufficiently correlated to RGB prices is a matter of weight for the finder of fact to determine. *See Bazemore*, 478 U.S. at 400.

[8] Dr. Lamb included variables to account for the movements in Chinese currency because

> [f]luctuations of world foreign exchange rates relative to the Chinese yuan can affect the competitiveness of Chinese [RGB] sold on the export market. For instance, if the Chinese yuan depreciates in value relative to other currencies, then the same yuan-denominated price for [RGB] translates into a lower price in terms of the buyer's domestic currency. Conversely, if the Chinese yuan appreciates in value, the same yuan-denominated price for [RGB] translates into a higher price in terms of the buyer's domestic

On the supply side, Dr. Lamb included variables to control for increasing costs of raw materials, energy, and labor in China; China's Total Factor Productivity (the "TFP")[9]; and inflation in China during the class period. (*Id.* at 18–19.)

Dr. Lamb's regression analysis produced a 0.757 R^2 statistic,[10] demonstrating a statistically strong explanatory value. (*Id.* at 20.)

Based upon these factors, the court is satisfied that plaintiff showed by a preponderance of the evidence that Dr. Lamb produced a "reliable" regression analysis, for purposes of Rule 702 and *Daubert*. Indeed, under *Daubert*'s "liberal standard," plaintiff need not "prove to the [court] by a preponderance of the evidence that [Dr. Lamb's regression analysis] is correct"; rather, plaintiff need "only show that it is reliable," and the "requirement of reliability is lower than the standard of correctness."

> currency. Therefore, changes in foreign currency markets may affect the price of Chinese [RGB] in the export market.

(ECF No. 251-2 at 17.)

[9] TFP "measures the economic resources used in producing economic goods; changes in [TFP] are, then, a good measure of changes in the comparative efficiency with which an industry operates over time." Kurt A. Strasser, *Bonus and Penalty Plans to Improve Public Utility Performance: Lessons from the Cases*, 19 CONN. L. REV. 513, 515 (1987).

[10] Dr. Lamb observed that "[o]ne statistic which is often used to evaluate performance of an econometric model is the [R^2] statistic. The [R^2] statistic measures the share of total variation in the dependent variable which is explained by the model. The model of [RGB] prices developed here explains 75.7 percent of the variation in the dependent variable." (ECF No. 251-2 at 20 (citing PETER KENNEDY, A GUIDE TO ECONOMETRICS 26–28 (3d ed. 1994).) One court within the Third Circuit found a regression analysis reliable with R^2 statistics lower than 75.7 percent. *In re Processed Egg Products Antitrust Litig.*, Civ. A. No. 08-md-2002, 2015 WL 337224, at *16–17 (E.D. Pa. Jan. 26, 2015) (finding a regression analysis that produced R^2 statistics of 0.65 and 0.66 reliable).

See United States v. Williams, 235 F. App'x 925, 928 (3d Cir. 2007) (citing *Daubert*, 509 U.S. at 590). Plaintiff satisfied this standard.

Defendants, moreover, failed to adduce evidence that including the omitted variables they proffered "would change the outcome of [Dr. Lamb's regression] analysis." *In re Indus. Silicon*, 1998 WL 1031507, at *3. As demonstrated in detail below, Dr. Lamb accounted sufficiently for his decisions to omit the factors proffered by defendants. Beyond "[m]erely pointing to economic conditions that *may* [have] affect[ed]" the dependent variable—*i.e.*, the price of Chinese export RGB during the class period—defendants failed to show Dr. Lamb's regression analysis is "so incomplete" as to be "irrelevant." *In re Linerboard*, 497 F. Supp. 2d at 678 (emphasis added); *see Bazemore*, 478 U.S. at 400 n.10. For these reasons, Dr. Lamb's regression analysis is admissible and should be "'tested by the adversary process—competing expert testimony and active cross-examination—rather than excluded from jurors' scrutiny for fear that they will not grasp its complexities or satisfactorily weigh its [alleged] inadequacies.'" *See Mitchell*, 365 F.3d at 244 (quoting *Ruiz-Troche*, 161 F.3d 77 at 85).

Each of defendants' arguments in support of excluding Dr. Lamb's expert opinion under Rule 702 will be addressed in turn.

i. <u>The effect of the Chinese government's export quota</u>

Defendants argue Dr. Lamb's opinion is unreliable under Rule 702 because he failed to include in his regression analysis an explanatory variable controlling for the Chinese government's export quota. (ECF No. 251 at 6–9.) Defendants argue the Chinese government restricted the supply of Chinese RGB available for export and imposed

bidding and licensure costs on RGB exporters, including defendants, from 2003 to 2009. (*Id.* at 7–9.) It was, defendants allege, the government quota and its attendant costs—not defendants' private collusion—that raised the price of Chinese export RGB. (*Id.*) According to defendants, the quota was a major factor affecting price, and Dr. Lamb's failure to control for it in his regression analysis renders his expert opinion unreliable and inadmissible under Rule 702. (*Id.*)

Plaintiff does not dispute that China enforced a restrictive export quota during all times relevant to Dr. Lamb's regression analysis. (ECF No. 254 at 7.) Plaintiff alleges, however, that defendants played a central role in approving increases and decreases in the government export quota and conspired privately to fix prices above and beyond the government quota during the class period. (*Id.* at 9–11.)

In this case, it has not yet been determined whether and the extent to which defendants engaged in an illegal private price-fixing conspiracy or, alternatively, the Chinese government imposed restrictive export quotas immune from this court's review under the act of state doctrine.[11] The resolution of these issues remains central to this dispute, as they have since its filing. *See, e.g.*, *Resco Prods., Inc.*, 2010 WL 2331069, at *3 ("Defendants argue that price coordination and supply limits were mandated by

[11] As this court has stated previously in this case, the act of state doctrine "'is the judiciary's institutional response to the foreign relations tensions that can be generated when a United States court appears to sit in judgment on a foreign state's regulation of its internal affairs.'" *Resco Prods., Inc. v. Bosai Minerals Grp.*, Civ. A. No. 06-235, 2010 WL 2331069, at *3 (W.D. Pa. June 4, 2010) (quoting *Envtl. Tectonics v. W.S. Kirkpatrick, Inc.*, 847 F.2d 1052, 1057 (3d Cir. 1998)). "American courts are to refrain from judging 'the validity of a foreign state's governmental acts in regard to matters within that country's borders.'" *Id.* (quoting *Envtl. Tectonics*, 847 F.2d at 1057–58).

China's export control regulations and policies. Under those circumstances, any alleged antitrust violation arguably was an act of state, and not a private conspiracy.").

Resolving these issues is inappropriate and premature with respect to the instant Rule 702 motion. The issues are not appropriate for resolution in the context of a *Daubert* motion. The matters will either be resolved in the summary judgment phase or at trial. For these reasons, the court declines to find Dr. Lamb's regression analysis unreliable under Rule 702 based upon his omission of a variable to control for the Chinese export quotas, the relevancy and import of which has yet to be conclusively established in this case.

ii. The increase in Chinese domestic bauxite prices

Defendants argue Dr. Lamb's opinion is unreliable because he failed to include in his regression analysis an explanatory variable controlling for the increase in Chinese domestic RGB prices occurring during the class period. (ECF No. 251 at 9–11.) Defendants contend Chinese domestic RGB prices rose steadily from 2003 to 2009 as defendants purchased it for export and sale to plaintiff in the United States. (*Id.*) To cover the growing costs of purchasing domestic RGB for export, defendants claim they charged plaintiff higher prices. (*Id.*) According to defendants, Dr. Lamb ignored this rise in domestic RGB prices and assumed instead, without data, that defendants fixed prices in *both* the export and domestic RGB markets.[12] (*Id.*) Defendants argue Dr. Lamb's willful ignorance of the data showing a rise in domestic prices—alongside his impermissible

[12] In its amended complaint, plaintiff alleges a price-fixing conspiracy only with respect to the export market for Chinese RGB. *See* (ECF No. 92.)

assumption that defendants engaged in domestic price-fixing—renders his regression analysis unreliable under Rule 702. (*Id.*)

The court cannot agree with defendant's position. After considering Dr. Lamb's Supplemental Report, the court is satisfied that Dr. Lamb did not engage in a "haphazard, intuitive inquiry" in omitting from his regression analysis the domestic RGB price variable. *Oddi*, 234 F.3d at 156. Plaintiff met its burden of showing Dr. Lamb had "'good grounds[] based on what is known'" about econometrics to omit the domestic price variable from his regression analysis. *Mitchell*, 365 F.3d at 244 (quoting *Ruiz-Troche*, 161 F.3d 77 at 85). Dr. Lamb's regression analysis should be "tested by the adversary process . . . rather than excluded from [the factfinders'] scrutiny for fear that they will not . . . satisfactorily weigh its [alleged] inadequacies." *Id.*

In his Supplemental Report, Dr. Lamb contends he considered the Chinese domestic RGB price variable but found it "tainted" and ambiguous as a matter of econometrics.[13] *See* (ECF No. 251-3 at 7.) In Dr. Lamb's view, his permissible assumption that defendants restricted the supply to raise the price of Chinese RGB chosen for export made it reasonable to assume Chinese RGB supplies grew

[13] When questioned at his deposition with respect to whether he considered the increase in domestic price in creating his model, Dr. Lamb stated:

> No, I would say I considered it . . . preposterous . . . [and] contrary to any sound econometric or economic practice that I've ever seen. . . . [U]sing the domestic price is simply improper as a matter of econometrics. So I didn't put forward the idea of using the domestic price. I don't think any competent econometric analysis would be based on it in this context. . . .

(ECF No. 254-2 at 71:3–4, 71:7–8, 73: 4–8.)

domestically, thereby lowering the Chinese domestic RGB price.[14] (*Id.*) In his model, Dr. Lamb determined that he could not segregate reliably the effects of the assumed export conspiracy from the domestic RGB price, rendering any variable based on domestic price "endogenous"[15] and, thus, untrustworthy as a matter of econometrics.[16] (*Id.*)

Dr. Lamb relied upon his "professional judgment" and experience in constructing econometric models to omit cautiously from his regression analysis a statistically ambiguous variable that he determined would reduce the explanatory power of his regression analysis. *Cf. Gutierrez*, 2006 WL 3246605, at *6 (noting that the expert "exercised professional judgment in deciding what control variables to include in her analysis" after she explained that the addition of proffered variables would "decrease[] the power of the test and make[] the results less precise"). The issue whether Dr. Lamb's

[14] At his deposition, Dr. Lamb explained that including the domestic price variable would "ignore[] the fact [that] if all of the export [RGB] were shifted to the domestic market[,] that would push the [RGB] price in [the] domestic market down." (ECF No. 254-2 at 69:18–21.)

[15] In econometrics, "'[w]hen there is correlation between a regressor [*i.e.*, an explanatory variable] and the error term, that regressor is said to be endogenous; when no such correlation exists[,] the regressor is said to be exogenous. Endogeneity gives rise to estimates biased asymptotically, making economists very unhappy.'" (ECF No. 251-3 at 7 n.7 (quoting PETER KENNEDY, A GUIDE TO ECONOMETRICS 139 (6th ed. 2008).) "When there is a choice between models with and without obvious endogeneity, standard econometric practice is to use a model that does not suffer from this problem . . . since the coefficients so obtained may more reliably expose to view the patterns of interest." Amaia Altuzarra, Felipe Serrano, *Firms' Innovation Activity and Numerical Flexibility*, 63 INDUS. & LAB. REL. REV. 327, 339 (2010).

[16] At the April 10, 2015, hearing on defendants' Rule 702 motion, plaintiff's counsel summarized Dr. Lamb's reasoning as follows: "When you have a conspiracy in the [export] marketplace, an economist should not properly then try [to include an independent] variable that's being affected by that conspiracy." (ECF No. 269 at 15:18–20.)

domestic price determinations are correct is "ripe for cross-examination, not *Daubert* exclusion." *Crowley v. Chait*, 322 F. Supp. 2d 530, 550 (D.N.J. 2004); *see Williams*, 235 F. App'x at 928 (citing *Daubert*, 509 U.S. at 590) ("[The] requirement of reliability is lower than the standard of correctness."). The extent to which Chinese domestic RGB prices influenced the amount plaintiff paid for exported Chinese RGB is a matter of weight for the finder of fact to consider—not the court. *See Bazemore*, 478 U.S. at 400; *Eastland*, 704 F.2d at 621 (observing that the "*probative value*"—not the admissibility under Rule 702—"of a multiple regression analysis" depends upon "the inclusion of all the major variables likely to have a large effect on the dependent variable[]. . . ." (emphasis added)).

iii. <u>China's closure of bauxite kilns and mines</u>

Defendants argue Dr. Lamb's opinion is unreliable because he failed to include in his regression analysis an explanatory variable controlling for the price-influencing effect of the Chinese government's closure of bauxite mines and kilns during the class period. (ECF No. 251 at 12–13.) Defendants argue China shut down polluting bauxite mines and kilns, which reduced the bauxite supply available and raised RGB prices. (*Id.*) During a deposition, defendants asked Dr. Lamb if he "investigate[d] whether the closing of the kilns . . . increased the price of [RGB] within China." (ECF No. 254-2 at 76:5–7.) Dr. Lamb responded, "No, I haven't seen any data on—hard data of the closing of kilns that would allow you to understand anything about the effect, I haven't seen that." (*Id.* at 76:9–12.) Defendants assert that "[a]though [Dr.] Lamb claimed not to have seen

information on the effect of kiln closures on bauxite prices, the material that he reviewed contains information on that very effect." (ECF No. 251 at 12.)

The trade press and materials to which defendants cite to support that mine and kiln closures significantly raised RGB prices fails to satisfy the court that Dr. Lamb's omission of a mine and kiln closure variable renders his regression analysis "so incomplete" as to be "irrelevant." *See Bazemore*, 478 U.S. at 400 n.10. As demonstrated below, the trade publications and materials on which defendants rely do not show conclusively that mine and kiln closures affected RGB prices to an extent that would render Dr. Lamb's expert opinion inadmissible under Rule 702 and *Daubert*.

First, defendants cite to one page of the October 2007 issue of *Mineral PriceWatch*, in which the author wrote, without citation, that:

> [i]mporters of bauxite from China continue to endure acute supply shortages. Traders say the situation has reached such a critical stage with some suppliers on the verge of declaring force majeure. *Views remain mixed on the exact cause*. *According to miners*, the latest supply shortages are due to the government's temporary ban of transportation of these (and other bulk materials) on the railways from inner China to the coast. *Other sources say* that the real reason relates to the ongoing closures of all bauxite kilns in the provinces of Henan, Shanxi, and Shandong.

(ECF No. 251-7 at 2 (emphasis added).) This article offers mere unsupported conjecture with respect to the causes underlying China's "actute [bauxite] supply shortages"—one of which may or may not have been mine and kiln closures. (*Id.*)

Second, defendants cite to a Microsoft PowerPoint© presentation created by Paul Moore ("Moore")—Senior Assistant Editor of *Industrial Minerals*—for the "ACerS and TRI Joint Fall Meeting." (ECF No. 251-8 at 2.) The date on which Moore gave the

presentation is not provided. In the presentation materials, Moore observed, without citation: "[Chinese] Bauxite—under fire from [environmental issues:] closure of shaft kilns; lack of investment for new rotaries. . . . China still dominates though." (*Id.* at 10.) Without any supporting context or corroborative data, however, this material fails to satisfy the court that mine and kiln closures affected RGB export prices in so substantial a way as to render Dr. Lamb's regression analysis irrelevant.

Finally, defendants cite to an article by Penny Crossley ("Crossley") entitled, "Three's a crowd? Refractory bauxite supply," published in the March 2003 issue of *Industrial Minerals*. (ECF No. 251-9 at 2–3.) In the article, Crossley observed, without citation, that:

> China has suffered a *seemingly* cataclysmic reduction in capacity in the past few years—over 900,000 tpa—through enforced [mine and kiln] closures relating to environmental and safety issues. . . .
>
> There have been a number of accidents in both bauxite and coal mines over the past two years, and the [Chinese] government has moved in to close down all illegal and unsafe practices. Combined with government-imposed closure of polluting kilns, the result has been an increase in the price of both raw bauxite and coal, and a shrinkage in supply. . . .
>
> [However,] [o]ver the past two years, *as* [*the Chinese bauxite*] *supply has fallen synchronously with demand,* ***prices have been relatively stable****—the most stable for the past ten years according to some reports*. . . .
>
> *Despite all the closures, many see the present situation as rather balanced*: the [Chinese bauxite] surplus has been removed, and *although production has dropped, worldwide demand has also declined, leaving the situation rather stable*. . . .
>
> *Others see the situation as not so balanced*. . . .

(*Id.* at 3–4 (emphasis added)). The highlighted portions of Crossley's article suggest that bauxite mine and kiln closures, in fact, *did not* affect RGB prices in a substantial way at all—but rather produced *stable* prices, in light of falling demand for Chinese bauxite worldwide.

These trade publications and materials demonstrate that the information upon which defendants base the argument that Dr. Lamb should have included a mine and kiln closure variable is "far too speculative to render his regression [analysis] inadmissible" under Rule 702 and *Daubert*. *In re Processed Egg*, 2015 WL 337224, at *17. The record contains only equivocal intimations in trade publications and materials and lacks sufficient evidence from which the court can reasonably conclude China's closure of mines and kilns produced so substantial an effect on Chinese RGB prices as to render Dr. Lamb's regression analysis "irrelevant." *See Bazemore*, 478 U.S. at 400 n.10.

In any event, defendants failed to "introduce evidence to support [the] contention that [Dr. Lamb's] failure to include [the mine and kiln closure variable] would *change the outcome* of [his] analysis." *See In re Indus. Silicon*, 1998 WL 1031507, at *3 (emphasis added) (citing *Palmer*, 815 F.2d at 101). Nothing in the record suggests defendants *tested* Dr. Lamb's regression analysis with the mine and kiln closure variable, let alone proved that its omission "would change the outcome" of Dr. Lamb's analysis. *Id.* Indeed, defendants' own expert—Dr. Frederick R. Warren-Boulton ("Dr. Warren-Boulton")—acknowledged that "[t]here is no clear indication of the number of . . . kilns forced to close or the time period over which closures have occurred[,] and different sources suggest different time periods." (ECF No. 254-2 at 89.) Dr. Warren-Boulton noted only

that "there is general agreement among industry observers that the [mine and kiln] closures affected [RGB] supply and therefore prices." (*Id.*) In effect, defendants "'[m]erely point[ed] to [an] economic condition[] that *may* [have] affect[ed] the [dependent] variable," which is "not enough to call into question the reliability" of Dr. Lamb's econometric model under Rule 702. *In re Linerboard*, 497 F. Supp. 2d at 678 (quoting *In re Polypropylene Carpet*, 93 F. Supp. 2d at 1365).

In sum, Dr. Lamb's omission of defendants' proffered price-influencing variables does not render his regression analysis "so incomplete" as to be "irrelevant" under Rule 702. *See Bazemore*, 478 U.S. at 400 n.10. For these reasons, defendants' Rule 702 motion to exclude Dr. Lamb's expert opinion will be denied. As noted previously, the issue whether Dr. Lamb rightly omitted potentially price-influencing variables from his regression analysis is a matter of weight for the finder of fact to consider—not the court. *See Bazemore*, 478 U.S. at 400; *see also Eastland*, 704 F.2d at 621. If this case proceeds to trial and defendants wish to challenge Dr. Lamb's expert reports and testimony, they must do so by vigorous cross-examination and by proffering their own expert to present contrary evidence. *Daubert*, 509 U.S. at 598.

IV. CONCLUSION

For the reasons set forth in this memorandum opinion, defendants' Rule 702 motion to exclude Dr. Lamb's expert opinion will be denied.

An appropriate order will follow.

Dated: September 18, 2015

/s/ Joy Flowers Conti
Joy Flowers Conti
Chief United States District Judge