

AN ANALYSIS OF DETERMINATION OF THE USUAL PRICE OF LIQUID STEEL PIG IRON IN THE MORAVIAN-SILESIA REGION

Kamila JANOVSÁ^a, Jakub GAJDA^b, Petra MARTINKOVÁ^c, Milan STOCH^a

^a VSB - Technical University of Ostrava, Ostrava, Czech Republic, EU, kamila.janovska@vsb.cz; milan.stoch@vsb.cz

^b ESAP Consult, s.r.o., Ostrava, Czech Republic, EU, gajda@esapconsult.cz

^c ROBE lighting s.r.o., Rožnov pod Radhoštěm, Czech Republic, EU, petra.martinkova@robe.cz

Abstract

In the period from 2003 to 2004 there was a dispute about the supply of liquid steel pig iron between companies X and Y. To resolve this dispute had to be an expert to determine the usual price of liquid steel pig iron in the Moravian-Silesian Region in this period. In an expert's determined usual price of liquid steel pig iron in the Moravian-Silesian Region were identified methodological and practical mistakes. Selected mistakes and their impact on the final usual price of liquid steel pig iron are presented in the article. The article outlines some methodological and practical deficiencies in determination of the usual price of liquid steel pig iron in the Moravian-Silesian Region. Attention is paid to the legal preconditions for the valuation and defining the usual price, which is our category of analyzed value.

Keywords: liquid steel pig iron, usual price, CRUspi Metallics

1. INTRODUCTION

In the Czech Republic engaged in valuation either appraisers (Licensing Act No. 455/1991 Coll.) or legal experts and expert institution (Act No. 36/1967 Coll., on experts and interpreters and also the Decree No. 37/1967 Coll., implementing the Act on experts and interpreters).

Appraisers valued in clearly defined areas: movable, immovable, intangible assets, financial assets, businesses. In contrast, legal experts and expert institutes can have diverse permissions that are not firmly anchored in legislation.

There are different categories of values. The article presents some problems of determination of the usual price, which the property evaluation Act defined as follows: the price achieved in the sale of the same or similar assets or services, without the influence of extraordinary circumstances, such as personal relationships, exceptional market circumstances or the influence of preferences. [1]

2. KEYPOINTS OF THE VALUATION

One of the key points of the correct determination of the usual price is the correct definition of the input data. Commodities entering a metallurgical company, such as iron ore, coking coal, ferro alloys, etc., are currently traded in commodity markets (for ex. LME - London Metal Exchange), which is why the importance of prediction of future price development is significantly increasing. [2]

In some cases, can meet with wrongly specified date, to which should be the usual price or searched value determined. Simply could be said, that is usually valued at the date of the last ordinary/extraordinary/final financial statements prepared before the valuation. If is the decisive day before the valuation, it is valued by the final financial statements (it is the day preceding the decisive day). If is the decisive day after the valuation, it is valued by the last ordinary/extraordinary financial statements. A related mistake with which can be in this sense encountered is, when the legal expert or appraiser does not reflect the most recent financial statements,

despite the fact, they already are available. It should also be noted that is necessary to have financial statements for more periods in order to assess trends and also is useful to ensure the information to compare of the companies with the similar business. If it is a determination of the usual price of the bygone period and the analyzed period includes only the part of the year, it sometimes occurs to simplification, when the legal experts take this period like the whole year. It could leads to significant mistakes, hereafter in experimental part.

A related problem could be a misstatement of the financial statements. Some legal experts or appraisers mistakenly accepted and based the valuation on any financial statements, even the data are apparently incorrect or distorted. This conduct is in the field of valuation known as a term "Enronitida," according to the group of Enron, had once the seventh largest company in the U.S., which by massive falsification of balance sheets cheated their depositors and employees and embezzled 800 million of dollars of pension benefits. Confirmation of these fraudulent machinations gave the company for economic control Arthur Andersen [3].

Mařík in his publication tells to solved topic the following: Valuator (legal expert or appraiser) by valuating usually relies on the auditor's conclusions. If it is not possible, he has to at least verified the financial statements itself, or mandate a qualified associate. It also must be interested in all the relevant information that is not for various reasons in the financial statements contained therein [4].

3. EXPERIMENTAL PART

In the period from 2003 to 2004 there was a dispute about the usual price of liquid steel pig iron between companies X and Y. In order to resolve this dispute was chosen an legal expert to determine in the analyzed period the usual price in the Moravian-Silesian Region. The legal expert used in his report two ways of determining the usual price of liquid steel pig iron, which were, in his words, based on the market comparison. The task of our team of authors was to analyze the expert's report and assess, whether the usual price was determinate correctly and in accordance with the legal principles (Act No. 36/1967 Coll., on experts and interpreters and Decree No. 37/1967 Coll. implementing the Act on experts and interpreters, property Evaluation Act No. 151/1997 Coll.).

Selected mistakes of expert's report are analyzed further in the presented article.

Defining the subject for which should be the usual price determined:

The usual price of liquid steel pig iron in the Moravian-Silesian Region in the period from 1st January 2003 to 30th June 2004. Usual price should be determined per one ton in CZK without VAT.

The chosen method for the determination of the usual price:

The method that the expert calls as "valuation based on the market comparison", where the expert determines the usual price by comparison based on the price development of similar commodities, respectively indices.

Calculation methods:

Calculation 1 - is based on a rate of growth of prices for selected commodities included in the index CRUsipi Metallics.

Calculation 2 - is based on the growth of average prices of imports and exports of pig iron in the Czech Republic.

Methodological and factual mistakes in the analyzed expert's report:

I. Expert doesn't take into account of exchange rate CZK/USD used to edit the dollar price in the calculation 1:

Expert's determination of the usual price of liquid steel pig iron is based on the fact that a contract price in 2002 is unchallenged and was arranged in Czech crowns and also the subject of the evaluation should be determined in Czech crowns. A detail analysis showed, that the expert used the dollar indices to edit the prices in Czech crowns. Because in the analyzed period the dollar weakened significantly against the Czech crown, became to an overestimation of the usual price in the calculation 1. The exchange rate of CZK/USD is given in **Table 1**.

Table 1 The exchange rate of CZK/USD (www.cnb.cz)

2002	2003	2004	1st midyear 2004
32.736	28.227	25.701	26.44

Table 2 CRUspi Metallics - index values (indices used by an expert)

Year	Index	Annual change
2001	72.99	
2002	87.81	20.3%
2003	115.77	31.8%
2004	193.22	66.9%

Index CRUspi Metallics went up between 2002 and 2003 by 31.8% (see **Table 2**). In the analyzed report, the price of liquid steel pig iron in the month of December 2003 was determined as follows:

$$4\,290 * 1.318141 = 5\,656 \text{ CZK}$$

Referred to this calculation, the expert erred when not taking into account of exchange rate CZK/USD, because he used in his calculation the dollar index. Correct calculation in this case would be with inclusion of a weakening dollar in the month of December 2003 as follows:

The course has decreased annual by

$$28.3 / 32.7 = 0.8622 \implies 0.8622 * 1.318 * 4\,290 = 4\,877 \text{ CZK}$$

By not taking into account of exchange rate CZK/USD (ceteris paribus) became to an overestimation for one ton in the month of December 2003 by CZK 779 (5 656 - 4 877).

A similar overestimation became naturally in the other months of 2003 and 2004 within the period.

Crucial mistake in the expert's report is therefore failure to not take into account of exchange rate CZK/USD, used to edit the dollar prices (in the calculation 1) This mistake unequivocally and repeatedly overestimated the price of each month, as shown in **Table 3**, as the expert ignored the significant appreciation of the Czech crown.

Table 3 Overestimation of the usual price in the expert's calculation 1 (CZK/t)

	January	February	March	April	May	June	July	August	September	October	November	December
2003	607 CZK/t	623 CZK/t	638 CZK/t	654 CZK/t	670 CZK/t	685 CZK/t	701 CZK/t	717 CZK/t	732 CZK/t	748 CZK/t	764 CZK/t	779 CZK/t
2004	1 149 CZK/t	1 209 CZK/t	1 270 CZK/t	1 331 CZK/t	1 391 CZK/t	1 452 CZK/t						

The expert as a prerequisite for Calculation 1 in the analyzed report indicated a strong correlation between the price of liquid steel pig iron in the Moravian-Silesian Region and the index CRUspi Metallics, this strong correlation, however does not substantiate any own calculation or by evidence confirmed this prerequisite.

II. Incorrect application of annual indices for the first midyear of 2004, despite the availability of more accurate data needed for the calculation 1:

Another crucial mistake that was identified in the analyzed report is using indices of growth of prices on the annual basis, which included the changes of prices in the period from 1st July 2004 to 31st December 2004, which was not the part of the analyzed period. This mistake affected both calculations used in the analyzed report. The growth of commodity inputs in the second half of 2004, which was not the part of the analyzed period, caused an increase in the final determination of the usual price.

The expert determined the usual price in this method by the changes in the index CRUspi Metallics. For price determination in 2004 used the increase by 66.9%. But this is the annual change. Properly expert should use the change of index for the first half of 2004, also the change by 52.7 %, it is the amount of change lower by 14.2 %, see **Table 4**.

Table 4 Calculation of the index CRUspi Metallics for the first midyear of 2004 (<http://www.cruindices.com/>)

Year	Average indices	Change between	Change of indices	Change (%)
2002	87.81	x	x	x
2003	115.77	2003/2002	1.3184	31.80%
2004	192.22	2004/2003	1.669	66.90%
1. midyear 2004	176.75	1.midyear 2004/2003	1.5268	52.70%

III. Incorrect application of annual indices for the first midyear of 2004 in the calculation 2:

The expert determined the usual price of liquid steel pig iron in this method by changes of the average import and export prices of solid pig iron in 2003 and 2004 compared with 2002. To determine the usual price of liquid steel pig iron in 2004 he used an average annual price of 8 770 CZK/t of solid pig iron, see **Table 5**. Properly expert should used for further calculations, the weighted average of solid pig iron in 1st midyear of 2004 of 8 047 CZK/t. The expert thus overestimated the price, with which he worked in the further calculations by 722 CZK/t. This procedure overestimated the final usual price of liquid steel pig iron. The expert overestimated the average import and export prices, as shown in **Table 5**.

Table 5 Overstatement of import and export prices in 1st midyear of 2004 (ČSÚ ČR, foreign trade by commodity and country, imports and exports from 1st January 2004 to 30th June 2004, article code 7201)

	2002	2003	2004	1st midyear of 2004	Difference*
Imports of pig iron (kt)	91	72	87	38	
Average price (CZK/t)	4 629	4 810	9 535	9 170	365
Exports of pig iron (kt)	29	50	53	44	
Average price (CZK/t)	5 237	5 549	7 513	7 078	435
Weighted average (CZK/t)	4 776	5 113	8 770	8 047	722

* Difference - Overestimation of weight average price of solid pig iron (CZK/t)

The impact of incorrectly selected period in 2004 cannot be further quantified, because the expert in his report has not specified the exact procedure of determined usual price of liquid steel pig iron in Calculation 2 (Did not explained exactly, how the has divided the annual prices for months, also the calculation procedure is unclear).

4. THE TOTAL QUANTIFICATION OF THE INCORRECT PROCEDURE

It were in detail analyzed, defined and quantified individual identified mistakes in determination of the usual price of liquid steel pig iron in the Moravian-Silesian Region for the period from 1st January 2003 to 30th June 2004. In the final assessment are quantified in the article presented expert's mistakes, he has done in the analyzed report of determination the usual price of liquid steel pig iron in the Moravian-Silesian Region and in those specific cases where it was possible was verify the calculations.

Point I - Calculation 1 - has became by not taking into account of exchange rate CZK/USD to overestimation of the usual price (see **Table 3**) in all months of the analyzed period. The overestimation ranged from 600 CZK to 1 400 CZK per one ton.

Point II - Calculation 1 - by using the changes of indices on the annual price basis, which included the changes in prices in the period from 1 July 2004 to 31 December 2004, which was not the part of the analyzed period has became in the analyzed report to the mistake, which again overestimated the usual price by 14.2% in each month of 2004 (see **Table 4**).

Point III - Calculation 2 - expert in the analyzed report overestimated the input parameters in Calculation 2 by 365 CZK/t of imports of pig iron and by 435 CZK/t of exports of pig iron (see **Table 5**). A full quantification of mistakes cannot be performed, because the expert has not specified the exact procedure in the calculation 2.

Not to take into account of exchange rate CZK/USD and a bad application of annual data to 1st midyear of 2004 in the Calculation 1 and in the Calculation 2 are the major mistakes that have been identified in the analyzed report. Other mistakes in the determination of the usual price are incompleteness and unclear numerical procedures or inaccuracy of the links according, to which could be an expert's calculation verify. It should be also noted that the expert in analyzed report based the Calculation 1 on the prerequisite of a strong correlation between the index CRUspi Metallics and the price of the liquid steel pig iron in the Moravian-Silesian Region, however, this prerequisite was not confirmed or supported by evidence.

CONCLUSION

The issue of determination of the usual price is very difficult, as regards the setting of prices in a particular place, in this case in the Moravian-Silesian region. [5] Specifics of metallurgical industry and particular the specifics of processing of requires consideration of many assumptions and limiting conditions (of which the most important is the availability of iron ore in the area and in particular its transport). [6]

Between the next specificities include the fact that the customers are not the final consumers but other firms; markets are made up of fewer large but concentrated customers who usually demand large volumes; there is geographical concentration of customers, the supplier-client relationships are very close, the demand is inflexible and depends on the consumer demand, purchasing is done professionally, rationally and in groups. [7] Therefore, it is inappropriate to apply the index CRUspi Metallics to determining the usual price of the liquid steel pig iron, which has not a significant correlation with the prices in the Moravian-Silesian Region. However, the expert in the analyzed report says the exact opposite, but did not give any evidence. Also the expert used in the analyzed report wrong method (Calculation 1) and yet he did in this method two crucial mistakes of which is inclusion of annual data to 1st midyear of 2004 reflected in the Calculation 2 too.

During the detail analysis of expert's report of the determination of the usual price of liquid steel pig iron in the Moravian-Silesian Region in the period from 1st January 2003 to 30th June 2004, were identified described mistakes, wrongly chosen method and badly applied practices that caused the overestimation of the usual price in the both calculation methods. For the above reasons it was not possible to exactly quantified all of these mistakes and shortcomings. This is due to the failure of internal control systems, which would, if consistent approach to risk management system and direct horizontal segregation of executive control processes and should not occur. [8]

ACKNOWLEDGEMENTS

The work was supported by the specific university research of Ministry of Education, Youth and Sports of the Czech Republic No. SP2014/67.

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