

A STUDY ON THE VEHICLE EVALUATION METHODS IN JUDICIAL TECHNICAL EXPERT REPORTS

Cornel ARAMĂ*, Lavinia ARAMĂ**, Mariana ARAMĂ*

*"Henri Coandă" Air Force Academy, Braşov, Romania (aramis5791@gmail.com)
**freelancer (lavinia_ana@yahoo.com)

DOI: 10.19062/2247-3173.2017.19.1.34

Abstract: *The judicial technical expert reports in automotive and traffic is a sensitive area. Few people are aware of their existence until they need one, and only then do they realize that the judge's final ruling depends on the expert's decisions. In this paper we are going to refer to the Civil Code judicial expert reports. More precisely, we are going to analyze some aspects about the litigation reports between the insurance firms and their insurants for some due compensation. One of the most sensitive problems in this situation is the evaluation of second-hand vehicles market value. We are going to suggest some methods of second-hand cars evaluation values.*

Keywords: *judicial technical expert, reports, evaluation, second-hand vehicles values ...*

1. INTRODUCTION

The judicial technical expert reports in automotive and traffic is a sensitive area. Few people are aware of their existence until they need one, and only then do they realize that the judge's final ruling depends on the expert's decisions.

Practice has proven that the majority of automotive and traffic judicial expert reports fall under the Penal and Civil Code areas. The first includes the analysis of different kinds of tragically traffic accidents with a lot of damages, loss of human lives and serious wounds. The majority of the analyzed situations in the Civil Code refer to different litigations between insurance firms and their insurants.

Generally, the traffic accident reconstruction has taken a big step forward, first of all due to the dedicated IT programs which make the work of traffic accident reconstruction specialists much easier. Unfortunately, these programs are very expensive and Romanian experts cannot afford to buy them. On the other hand, the demo versions of these programs allow the specialists to model different situation.

Secondly, a lot of tests have been made that take into consideration almost all the situations that can be met in traffic accidents and this thing has allowed to establish a lot of apparently abstract formulas, but which can lead to simplified and accurate calculi.

In this paper we are going to refer to the other kind of judicial expert reports: the Civil Code provisions. More precisely, we are going to analyze some aspects about the litigation reports between the insurance firms and their insurants for some due compensation. One of the most sensitive problems is the evaluation of second-hand vehicles market value.

2. STATE OF ART

From the point of view of mandatory vehicle insurance (RCA-type), until 01.01.2015 the algorithm was clear because the Order CSA no. 14/2011 stipulated a rigid system of calculating the market value for a second-hand vehicle. This algorithm was based on the wear coefficients presented in the annexes to the order.

The current order, CSA no. 23/06.11.2014, entered into force in 01.01.2015 and it no longer states clearly how vehicles must be evaluated. As written down in Art. 52/CSA23/2014: “(1) The value of the vehicle at the time of the traffic accident is established on the base of the market study taking into consideration the market values of similar vehicles with the same manufacturer, type, model, technical characteristics, technical equipment, manufacturing year, the same number of kilometers and state of maintenance. (2) The vehicles market value must be established on the base of specialty systems for the evaluation of the vehicles permanently registered in Romania and on the base of any documents presented by the injured party which can prove the prejudice.”

As one can easily infer, establishing the second-hand vehicles market value could be a permanent source of evaluator’s subjectivism, especially as far as CASCO insurance is concerned, where the insurants, who are not specialists in this field, can fail to notice very important details included in the insurance contract.

The Romanian Evaluators National Association (ANEVAR) supports its members by developing evaluation standards and guides, but these are difficult to access by the experts who are not ANEVAR members.

However, as long as there is no legal obligation to comply with some evaluation methods, technical experts have the duty to develop more or less original techniques to get closer to the real value.

3. SUGGESTED METHODS OF EVALUATING VEHICLES (example)

Evaluated vehicle:

Table 1. Evaluated vehicle characteristics

Manufacturer	Skoda
Model	Octavia II A5
Generation	Octavia II (facelift 2009)
Factory	Skoda Czech Republic- Mladá Boleslav
Engine type	1.6 MPI (102 HP)
Door number	5
Engine power	102 HP /5600 rot/min
Manufacturing year	2011
Body type	Hatchback
Engine type	Otto
Ecological standard	EURO IV
Date of the event	28.11.2014
Odometer	Unknown

The odometer is very important in order to evaluate the car as accurately as possible, taking into account that we do not know the on board kilometres we have to evaluate. So:

- the odometer on 29.05.2014 (date when the CASCO insurance was signed): 128.875 km;

- the date of first car registration: 10.11.2011 → the vehicle circulated until the insurance was signed, 29.05.2014, approximately 30,5 months;

- the average of kilometres circulated monthly:

$$M = \frac{128875}{30,5} = 4225 \text{ km/month} \quad (1)$$

- the car is very likely to have circulated from the moment when the insurance was signed, 29.05.2014, until the date of accident, 28.11.2014:

$$\begin{aligned} KM \text{ rolling till the date of accident} &= 6 \text{ months} \times 4225 \frac{\text{km}}{\text{month}} \\ &= 25350 \text{ km} \end{aligned} \quad (2)$$

- so, very probably the Skoda Octavia had an odometer on the date of the accident, 28.11.2014:

$$KM \text{ presumptiv odometer} = 128875 + 25350 = 154225 \text{ km} \quad (3)$$

CONCLUSION: The car evaluation on the date of the accident will be done taking into account 154.225 kilometres on board!

A. The evaluation based on CSA 14/2011 algorithm

The acquisition value of the new Skoda Octavia, based on acquisition invoice, was 56.163 lei.

The leu/euro exchange rate in 28.10.2011 was 4,3150 lei/1 euro.

So, the car value in 28.10.2011 was:

$$V_{\text{euro}} = \frac{56163 \text{ lei}}{4,3150} = 13015,75 \text{ euro} \quad (4)$$

It results that the value for a new car was:

$$V_{\text{Skoda}} = 56163 \text{ lei} = 13015,75 \text{ euro} \quad (5)$$

→ Accordingly, the calculi for establishing the real value on the date of the accident are going to be made starting from the new car price of 13.015,75 euro.

The date of the first registration of Skoda Octavia, according to the Registration Licence, is 10.11.2011. It results that the exploitation time on the date of the accident was 3 years and 1 month.

According to the calculi made on the 2.3.1 part, at that moment the odometer was 154.225 km.

→ **The establishment of wear coefficient:**

The average number of kilometres per month:

$$Km_{\text{per month}} = \frac{154225}{37} = 4168 \text{ km} \quad (6)$$

Kilometres per year:

$$Km_{\text{per year}} = 4168 * 12 = 50019 \text{ km} \quad (7)$$

The correction of the wear coefficient:

$$C_{\text{wear coefficient}} = \frac{50019 - 15000}{1000} * 0,5 = 17,50\% \quad (8)$$

The calculus of temporarily wear coefficient:

$$U = 37 + 17,50 = 54,50\% \quad (9)$$

The wear coefficient of Skoda Octavia is adopted for the date 28.11.2014:

$$U_r = 45\%$$

→ It results that the value of Skoda Octavia in 28.11.2014 was:

$$V_{Skoda} = A * U_r = 13015,75 \text{ euro} * (100 - 45)\% = 7158,66 \text{ euro} \quad (10)$$

Taking into account the exchange rate leu/euro in 28.11.2014 the value of Skoda Octavia will be:

$$V_{Opel} = 7158,66 * 4.4247 = 31674,93 \text{ lei} \quad (11)$$

B. The establishment of the real value based on online market study of sites specialised in second-hand vehicles commercialization

Investigation factors:

Manufacturer - Skoda

Model - Octavia II (facelift 2009)

Engine type - 1.6 MPI (102 HP), gasoline

Body type – 3 volumes

Manufacturing year – 2011

Odometer – aprox. 155.000

Table 2. www.olx.ro

According to: https://www.olx.ro/						
No.	Manufacturer, type, model	Engine capacity [cm ³]	Manufacturing year	Odometer	Required price [euro]	Comments
1	Skoda Octavia 1.6 MPI	1600	2012	150000	7000	

Table 3. www.autovit.ro

According to: https://www.autovit.ro						
No.	Manufacturer, type, model	Engine capacity [cm ³]	Manufacturing year	Odometer	Required price [euro]	Comments
1	Skoda Octavia 2	1595	2012	122700	6555	+ 202 euro stamp tax
2		1600	2012	145000	6280	
3		1598	2010	119000	5487	

Table 4. lajumate.ro

According to: https://lajumate.ro						
No.	Manufacturer, type, model	Engine capacity [cm ³]	Manufacturing year	Odometer	Required price [euro]	Comments
1	Skoda Octavia 2 1.6 MPI	1600	2011	119000	7100	with GPL system
2		1595	2010	101000	7899	

Table 5. www.bestauto.ro

According to: http://www.bestauto.ro						
No.	Manufacturer, type, model	Engine capacity [cm ³]	Manufacturing year	Odometer	Required price [euro]	Comments
1	Skoda Octavia 2	1595	2011	81000	8250	
2		1400	2011	155.355	7900	
3		1400	2011	169.000	5600	

In order to evaluate the average price required by the sellers, the method of balanced average cost, CMP, is going to be applied, as it follows:

$$\begin{aligned}
 CMP &= \frac{\sum_1^n (\text{required price})_n}{n} \\
 &= \frac{7000 + 6757 + 6482 + 5689 + 7100 + 7899 + 8250 + 7900 + 5600}{9} \quad (12) \\
 &= 6964 \text{ euro}
 \end{aligned}$$

After that, a negotiation decrease coefficient in value of 17% will be applied and the final price will be:

$$PF = 6964 \text{ euro} \times 83\% = 5780 \text{ euro} \quad (13)$$

Justification: when we appreciated the negotiation decrease coefficient, we took into account, as decreasing factors, that the evaluated car was used by a firm and 4168 km/month is a very high value for a car rolling in Romania. It is clear that the vehicle was used intensively. Also, as increasing factors, we took into account that the exploitation working time was short, the maintenance state was good and the general aspect was good, too.

C. The establishment of the real value based on the online market study of sites specialised in vehicles evaluation

Table 6. www.autotrader.co.uk

Accordingly to: http://www.autotrader.co.uk environmental stamp: http://www.4tuning.ro
3350 pounds sterling ≈ 3970 euro + TVA → 4764 euro + 202 euro (stamp tax) = 4966 euro

Table 7. www.eurotax.nl

Accordingly to : http://www.eurotax.nl environmental stamp: http://www.4tuning.ro/
6070 euro + 202 euro (stamp tax) = 6272 euro

Table 8. www.vezicatface.ro

Accordingly to : http://www.vezicatface.ro/
7112 euro

In order to evaluate the average price appreciated by the specialised sites in vehicles evaluation, the method of balanced average cost, CMP, is going to be applied, as it follows:

$$CMP = \frac{\sum_1^n (\text{evaluated cost})_n}{n} = \frac{4966 + 6272 + 7112}{3} = 6117 \text{ euro} \quad (14)$$

CONCLUSIONS

Taking into account the increase of serious traffic accidents, it is very important to elaborate more and more abstract and accurate methods, without possibilities of interpretation, in order to decrease the huge expenses resulted from these types of events.

Unfortunately, the calculi systems used to evaluate the second-hand vehicles or the wrecked bodies resulted from the traffic accidents are not very accurate and they could be very subjective. Accordingly, the establishment of some very accurate calculus methods is absolutely necessary in order not to let the results be at the hand of the investigator's subjectivism.

Using the mass media in order to evaluate vehicles involved in traffic accident is not a very accurate method especially when we have to apply the results on judicial reports. For example, the sites specialised in vehicles commercialization cannot foresee the normal negotiation between sellers and buyers and the algorithm used by the sites specialised in evaluation are unknown to the public.

Otherwise, in case of the wrecked bodies resulted from the traffic accidents, the subjectivism of the evaluators is more significant because, sometimes, the judge's request for evaluations based on the parts which have not been destroyed in the accident. This situation is very difficult for the specialist because the UR laws forbid dismantling the wrecked bodies. Only specialised firms are allowed to do so. The unknown points in this situation are so many that it is almost impossible for the specialist to come up with a clear evaluation.

REFERENCES

- [1] N. Cordoş, I. Rus and N. Burnete, *Automobile. Construcție, uzare, evaluare*, Todesco Publishing House, Cluj-Napoca, 2005;
- [2] R. Gaiginschi, *Reconstrucția și expertiza accidentelor rutiere*, Tehnică Publishing House, București, 2009;
- [3] H. Braess, U. Seiffert, *Handbook of Automotive Engineering*, SAE order no. R-312, ISBN 0-7680-0783-6;
- [4] Ghid de evaluare ANEVAR GEV-620, *Evaluarea bunurilor mobile (mașini, echipamente, instalații și stocuri)*, Standarde de evaluare ANEVAR.