



## Developments of the Albanian Insurance Market in the Framework of the MTPL Insurance Liberalization

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**Abstract**—Aim of this paper is to present the challenges and developments of the Albanian insurance market during the process of its liberalization. Consequently the insurance market has shown instability with regard to the fluctuations of the premium levels. A fair pricing based on the market conditions is one of the biggest challenges of the Albanian insurance market. By means of an econometric model, the correlation between the liberalization process and profitability of insurance companies has been shown. This paper discusses also the efficiency of the Bonus-Malus System, which is expected to be implemented in Albania in 2018 in order to stabilize the insurance market. In this regard the elasticity according to Loimaranta (1972) is calculated for Albania. As the Bonus-Malus System is already implemented in other region countries, the paper suggests that in addition to the advantages this system can bring, there is also the risk of the phenomenon known in the literature as “Hunger for Bonus”, according to which, people tend to not report the claims. Under such conditions the result would be a lower claim frequency deriving from the non-reporting of claims and not from the implementation of the Bonus-Malus System. The implementation of the Bonus-Malus system must be accompanied by an increase of anti-fraud measures.

**Keywords**— Liberalization, MTPL Insurance, Bonus-Malus System, Efficiency of Bonus-Malus, Markov Transition Matrix

### I. INTRODUCTION

In August 2011 Albania liberalized the premium tariffs for the MTPL insurance, which represents the main business line in Albania. Since then, mandatory motor insurance premiums have undergone constant fluctuations. The process of liberalization supports the competitiveness, but it can lead to market failures and distortions, if this liberalization is premature. The Albanian Financial Supervisory Authority has taken different measures to contribute to the stabilization of the insurance market. The introduction of the Bonus-Malus system is intended to stabilize the market. It is expected to be implemented in 2018, therefore we analyze in the paper the effectiveness of this system for the Albanian case, by

calculating its elasticity.

### II. LIBERALIZATION OF INSURANCE MARKET IN ALBANIA, AN ECONOMETRIC ANALYSIS OF THE IMPACT OF INSURANCE LIBERALIZATION ON PROFITABILITY OF INSURANCE COMPANIES

Discussions on the liberalization of the insurance market in Albania are currently focusing on the liberalization of the MTPL premium tariffs. This is a further step towards the liberalization process of the Albanian insurance market, which began in 1999 with the approval of some amendments to law 8081, dated 07.03.1996 “On insurance and reinsurance activities”. The law no. 8458, dated 11.02.1999 enabled the introduction of private insurance companies with domestic or foreign capital. As a consequence, Sigma was licensed on 03.02.1999, Intersig on 13.09.2001, InterAlbanian on 10.09.2004, Albsig on 10.09.2004, Eurosig, Sigal Life and Sicred on 10.09.2004. (AMF, 2006). Starting from 2006 also foreign companies started to show interest in the Albanian insurance sector. With the further development of the insurance market, the insurance laws have undergone further changes and currently the activity and supervision of insurance companies is regulated by law no.52, dated 22.05.2014 “On the activity of insurance and reinsurance”.

It is well known that liberalization in general promotes competitiveness and improves the quality of products in favor of the consumer. Social welfare can be supported by perfect competition of markets. (Samuelson, 1965). The discussions about liberalization give rise also to discussions on regulation. This lies in the fact that a competitive model assumes that information is perfect for both, buyers and sellers. Nevertheless insurance is a complex business, where the existence of asymmetric information is inevitable. In some cases, the customer has more information than the insurer and sometimes the opposite is true. For example, the seller has more information regarding the financial soundness of the company. It is the information asymmetry that justifies the market intervention through regulation. Insurers and their representatives have fewer incentives to be transparent as their sales can be affected, so that regulators aim at establishing balances between the insured and the insurers by monitoring the financial soundness of the companies in order to protect the consumer. (OECD, 2000). Empirical evidence shows a positive correlation between the openness of the insurance market, its liberalization and competitiveness through productivity improvements. (OECD, 2000).

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The competition in the Albanian insurance market has intensified and is harsh considering the fact that the main business line for all companies is the compulsory motor insurance. Competitiveness is measured by the Herfindahl-Hirschmann index, which is calculated as the sum of the squares of the market shares of each insurance company, according to the formula below:

$$\text{Herfindahl} = \sum_{i=1}^n s_i^2, \quad (1)$$

where  $s$  represents the market share of each insurance company,  $i$  is the number of insurance companies, which takes

values from 1 to  $n$ , depending on the number of companies operating in the market. The highest value that this indicator can receive is 10,000 indicating a lack of competitiveness as well as a concentration of insurance activity in the hands of just one company. The lower the value of this index, the higher is the competitiveness. For example, in 1999 INSIG (Non-Life) accounted for 92.33 % of the market, Sigma 5.85%, Sigal 1.62% and INSIG (Life) 0.20%. (AMS, Annual Statistical Report, 2005). As a result, the author's calculations show a high index of 8561. Compared to January-June 2017, based on the market shares for non-life insurance companies as shown in figure 1, the calculations according to formula 1 show a Herfindahl index of 1581.65, indicating a decrease in the concentration of companies.

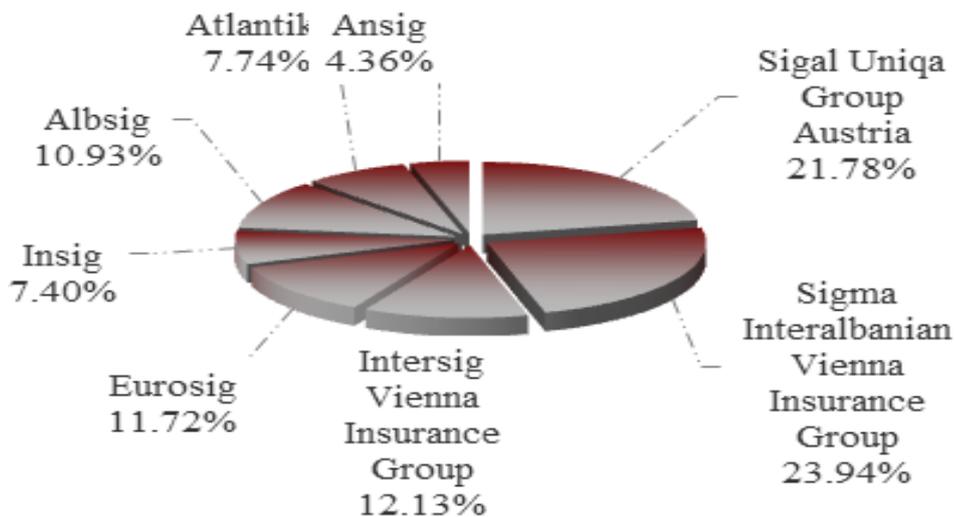


Figure I: Market Shares of Non-Life Insurance Companies, as of January-June 2017

Source: AMF, Statistical Report on the Insurance Market: [www.amf.gov.al](http://www.amf.gov.al)

The table below shows the results of the Herfindahl-Index and the Albanian insurance market concentration for the period 2006-2017.

Table I: Herfindahl index and Concentration Rate

Companies/years	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006
Herfindahl Index	1635.785	1598.838	1671.518	1364.546	1593.879	1310.439	1465.078	1323.133	1382.249	1242.615	1303.423606	1338
Companies/years	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006
Sigal Uniqa Group Austria	27.86	27.41	28.71	28.85	34.52	30.33	32.85	30.71	29.71	27.16	27.8	28
Eurosig	15.74	15.63	15.21	12.75	12.72	10.07	8.44	6.28	5.48	4.53	5.16	3
SIVIG	15.21	14.46	16.36	n.a	n.a							
Intersig	12.15	11.13	12.04	12.76	10.85	9.18	9.46	9.86	12.49	7.64	5.543	8
Albsig	11.2	12.09	9.91	9.71	8.31	8.62	7.98	7.44	7.3	7.96	6.903	6
INSIG	6.87	6.67	5.84	6.22	5.24	7.54	8.13	8.41	12.49	15.14	16.282	18
Atlantik	5.69	6.53	6.13	6.52	5.12	8.29	9.77	10.83	10.21	11.52	12.668	11
Ansig	5.28	6.08	5.78	5.6	0	2.23	0	0	0	0	0	0
Sigma	n.a	n.a	n.a	7.97	8.95	11.87	13.27	15.39	14.75	15.46	17.75	18
Interalbanian Vienna Ins	n.a	n.a	n.a	6.04	9.05	11.86	10.1	11.09	11.35	10.55	7.892	7
Herfindahl Index	1635.79	1598.84	1671.52	1364.55	1593.88	1310.44	1465.08	1323.13	1382.25	1241.85	1303.42	1338.00
Concentration Rate	70.96	69.59	72.32	64.07	67.14	64.13	65.99	68.02	69.44	69.28	74.5	75

Source: Authors Calculations

Years	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
ROA	2.87	6.68	4.66	2.52	5.26	-2.58	2.76	-4.4	2.82	1.6	1.58

Source: Author's calculations based on Supervision Reports of AFSA

Concerning the Albanian insurance market, similar calculations have been undertaken by Sharku /Shehu (2016), who analyze the development of the Albanian insurance market structure and estimate these indicators for some of the Western Balkan countries.

We use the Herfindahl Index in the econometric model as a dependent variable expressing the market liberalization. Main purpose of the econometric model presented in this paper is to show the effect of insurance market liberalization on the company's profitability. We have selected the return on the assets of non-life insurance companies (ROA), as independent variable, which is calculated as the ratio of net financial result to the total of assets. We have considered a number of observations equal to 11 for a period including the years 2006-2016. Based on the data obtained from AFSA's<sup>1</sup> Supervision Reports over the years 2006 to 2016, we calculate the Return on Assets (ROA) for Non-Life insurance companies. The results are shown in the table below:

Table II: ROA of Albanian Insurance Companies (in %)

<sup>1</sup> AFSA is the Abbreviation of Albanian Financial Supervisory Authority, which supervises and regulates the Albanian insurance market. Besides, it regulates and supervises also the investment and pension funds sector.

The OLS methodology is used for the solution of the multivariable regression. The Herfindahl-Hirschman liberalization index (HHDI) as well as the shares of foreign capital to the total capital are considered as independent variables that can explain the fluctuations in the profitability of the insurance companies. Through the increase of foreign capital during the process of liberalization there can be noticed a productivity increase as result of the modern technology and the know-how that foreigners bring in Albania. Under these circumstances, we think that the correlation between domestic capital to the total capital and the profitability of companies will be negative, while the correlation between the foreign capital to the total of capital and the profitability would be positive.

CR, indicating the concentration rate is another independent variable used in the model. This coefficient shows the market share in terms of the overall gross written premium, of the four biggest insurance companies in Albania. The higher this indicator, the higher is also the concentration rate.

Model results are shown below:

Dependent Variable: ROA

Method: Least Squares

Sample: 2006 2016

Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.02041	18.25458	0.548926	0.6001
HHDI	-2.014779	0.698191	-2.885715	0.0235
CR	0.408058	0.200367	2.036556	0.0811
DC	-0.121298	0.156233	-0.776395	0.4629
R-squared	0.658456	Mean dependent var		2.160909
Adjusted R-squared	0.512079	S.D. dependent var		3.222901
S.E. of regression	2.251238	Akaike info criterion		4.736126
Sum squared resid	35.47652	Schwarz criterion		4.880815
Log likelihood	-22.04869	Hannan-Quinn criter.		4.644919
F-statistic	4.498380	Durbin-Watson stat		2.087392
Prob(F-statistic)	0.046418			

Source: Author's calculations based on E-Views

The table above shows that about 65% of the changes in the profitability of the insurance companies can be explained by the liberalization (HHDI), the concentrations rate (CR) and the share of domestic capital to total capital (Dc). The Herfindahl index is statistically significant, since the probability value of this indicator is 0.02, thus less than 5%. However, all indicators jointly explain the changes in profitability and this interaction is statistically significant with a probability of 0.04. It is obvious that the link between profitability and the Herfindahl coefficient is negative, hence the higher the Herfindahl

coefficient, the lower the competition and the lower the profitability. Even the relationship between DC and profitability (ROA) is negative, as the greater the Albanian capital, the lower the profitability.

The share of foreign capital in Albania has increased over the years 2006-2016 from 33% in 2006 to 47.29% in 2016. Foreign capital in Albania is dominated by the Austrian capital.

If we put the share of foreign capital to the total capital as an element explaining profitability, then the link between the share of foreign capital (FC) and profitability should be positive. This is confirmed by the model as follows:

Dependent Variable: ROA

Method: Least Squares

Sample: 2006 2016

Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.126172	14.93121	-0.142398	0.8908
FC	0.121503	0.156108	0.778328	0.4619

HHDI	-2.015226	0.697715	-2.888324	0.0234
CR	0.408273	0.200367	2.037627	0.0810
R-squared	0.658591	Mean dependent var		2.160909
Adjusted R-squared	0.512272	S.D. dependent var		3.222901
S.E. of regression	2.250794	Akaike info criterion		4.735730
Sum squared resid	35.46251	Schwarz criterion		4.880420
Log likelihood	-22.04652	Hannan-Quinn criter.		4.644524
F-statistic	4.501080	Durbin-Watson stat		2.086954
Prob(F-statistic)	0.046357			

To prove that the model is a good model, a residual diagnosis is also undertaken, where among others the model should have a high value of correlation (over 60%), the model should not show heteroskedasticity and serial correlation of residuals, which should have also a normal distribution. In

order to ascertain whether there is a serial correlation, the Breusch Godfrey Serial Correlation Test (LM) test was developed, where the results below show that hypothesis 0 can not be rejected, so that the residuals do not have serial correlation.

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.094270	Prob. F(2,5)	0.9116
Obs*R-squared	0.399716	Prob. Chi-Square(2)	0.8188

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Sample: 2006 2016

Included observations: 11

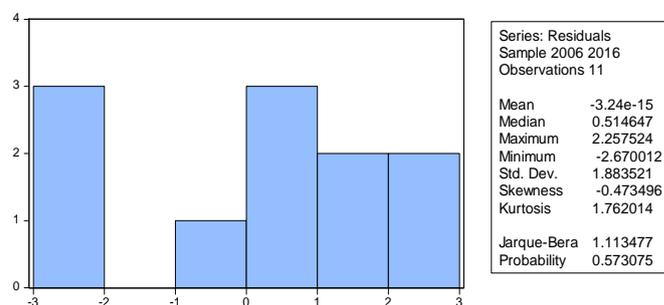
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
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C	-4.003366	24.12029	-0.165975	0.8747
HHDI	0.190551	0.932561	0.204331	0.8462
CR	0.010518	0.240794	0.043680	0.9669
DC	0.009137	0.183576	0.049772	0.9622
RESID(-1)	-0.223947	0.529072	-0.423283	0.6897
RESID(-2)	0.031551	0.536990	0.058756	0.9554

R-squared	0.036338	Mean dependent var	-3.24E-15
Adjusted R-squared	-0.927324	S.D. dependent var	1.883521
S.E. of regression	2.614857	Akaike info criterion	5.062747
Sum squared resid	34.18738	Schwarz criterion	5.279781
Log likelihood	-21.84511	Hannan-Quinn criter.	4.925938
F-statistic	0.037708	Durbin-Watson stat	1.817403
Prob(F-statistic)	0.998685		

To see if the model has heteroskedasticity, again by means of the Breusch Pagan Godfrey test, we prove that hypothesis 0 which states that the model has no heteroskedasticity, can not be rejected because the probability value is greater than 5% (P-value is 0.68 thus more than 5%). A normal distribution of residuals is desirable for a good model. In this regard the Jarque Bera test, shows that the probability value is greater than 5%, so that hypothesis 0 is accepted, meaning a normal distribution of residuals.



The results of the model are more in support of the efficiency theory than of the hypothesis known as Structure-Conduct-Performance (SCP), developed by Mason (1939) and Bain (1951), according to which the high profitability of the market is related to anticompetitive behavior and a high concentration rate. (Njegomir et al (2011).

Studies conducted by Pope / Ma (2008) on the application of the SCP model to 23 states for the period 1996-2003 support the SCP hypothesis for low levels of liberalization, but with the further increase of liberalization, the presence of foreign capital providers increases, changing significantly the dynamic of the non-life insurance market. Njegomir et al. (2011) find an application of the SCP hypothesis in their analysis regarding the insurance market in the former Yugoslavia for the period 2004-2008. Similar research was undertaken by Pervan/Kramaric (2012) for the Croatian insurance market. These authors have also considered GDP, the annual inflation rate and the market shares of the companies as independent variables, and they find a positive correlation between the Herfindahl Index and the profitability of companies, supporting the SCP hypothesis. Although the insurance market has made progress, driven by competition, again the indicators of the development of this market remain still at a low level in Albania compared to the countries of the region. The main indicators that show the development of the insurance market are: premium per capita, penetration rate, compulsory motor insurance share to the total of gross written premiums, and the share of life insurance to the total market.

Penetration rate during 2008-2016 is presented in the following table for some Central and Eastern European countries:

	Penetration rate (% to GDP)								
	2008	2009	2010	2011	2012	2013	2014	2015	2016
Albania	0.66	0.69	0.66	0.64	0.67	0.63	0.83	0.98	1.03
Bosnia and Hercegovina	1.81	1.89	1.9	1.89	1.93	1.97	2.06	2.08	2.16
Bulgaria	2.54	2.38	2.26	2.06	1.96	2.1	2.12	2.22	2.21
Croatia	2.78	2.84	2.82	2.75	2.74	2.75	2.61	2.61	2.55
Czech Republic	3.48	3.68	3.95	3.86	2.8	2.78	2.67	2.55	2.51
Estonia	2.13	2.22	2.01	1.72	1.65	1.68	1.73	1.78	1.86
Hungary	3.31	3.15	3.13	2.91	2.65	2.66	2.57	2.46	2.5
Kosovo	1.45	1.66	1.62	1.62	1.61	1.45	1.44	1.36	1.34
Latvia	2.06	1.95	1.8	1.95	2.04	2.07	2.19	2.18	2.13
Lithuania	1.76	1.66	1.61	1.58	1.55	1.61	1.64	1.73	1.84
Republic of Macedonia	1.55	1.49	1.48	1.47	1.5	1.43	1.45	1.48	1.44
Montenegro	1.96	2.2	2	2	2.1	2.16	2.09	2.12	2.15
Poland	4.64	3.77	3.77	3.68	3.84	3.49	3.19	3.05	3.04
Romania	1.7	1.74	1.56	1.38	1.38	1.25	1.17	1.2	1.24
Serbia	1.9	1.86	1.84	1.68	1.71	1.65	1.78	2	2.12
Slovakia	3.08	3.11	3	2.91	2.8	2.81	2.77	2.57	2.45
Slovenia	5.34	5.73	5.78	5.67	5.71	5.51	5.19	5.19	5.11
CEE	3.31	3.14	3.15	3	2.9	2.74	2.59	2.52	2.5

Source: XPRIMM, *Insurance Report, 2015; Insurance Report, 2016*

In addition to economic development, the European integration process can also be an important factor in the positive performance of the insurance market. During their empirical analysis Kozarević/Peressin/Valentinuz (2013), find a positive link between the European integration process for Western Balkan countries and the development of the insurance market. Compared to the countries of the region, in Europe the penetration rate in 2015 was about 7.4%, ranging from 0.2% in Iceland and Latvia to 9.3% in Finland. (Insurance Europe, 2016).

### III. LIBERALIZATION OF COMPULSORY INSURANCE MARKET TARIFFS IN ALBANIA, REGION COUNTRIES AND EUROPE

In Albania, the Compulsory Motor Insurance entered into force for the first time on 1.1.1993 by Law no. 7641, dated 1.12.1992 "On approval with several amendments to the decree no. 295, dated 15.9.1992" On Compulsory motor Third Party Liability", now out of force.

Motor insurance is the main business line not only in Albania, but also in the region and Europe. The table below shows the share of the motor insurance class to the gross written premiums in Albania and some Central and Eastern European countries.

CEE	GWP		Change	Share to GWP	
	2016	2015		2016	2015
	EURO (in Mio.)	EURO (in Mio.)	%	%	%
Albania	70.32	61.74	13.89	61.56	60.17
Bosnia and	163.18	148.61	9.81	50.34	48.78
Bulgaria	317.49	301.77	5.21	30.28	30.05
Croatia	270.28	275.26	-1.81	23.32	24.09
Czech Repu	777.36	757.48	2.62	17.72	17.64
Estland	79	71.02	11.24	20.36	19.66
Hungary	422.75	307.62	37.42	14.84	11.53
Kosovo	52.4	53.31	-1.7	62.5	65.43
Latvia	53.19	56.55	-5.93	9.99	10.65
Lithuania	155.97	136.01	14.67	21.97	21.08
Macedonia	62.73	59.94	4.67	44.22	44.59
Montenegr	35.23	32.89	7.13	43.97	42.75
Poland	2,634.41	1,966.60	33.96	20.8	15.29
Romania	922.81	739.9	24.72	44.15	38.53
Serbia	245.14	238.5	2.79	33.96	35.84
Slovakia	290	270.56	7.18	14.59	13.4
Slovenia	225.63	220.51	2.32	11.1	11.01
<b>Total</b>	<b>6,777.90</b>	<b>5,698.26</b>	<b>18.95</b>	<b>21.64</b>	<b>18.49</b>

between low premiums imposed by law and the process of claim settlement. (World Bank, 2009).

Until 2011, premium tariffs for compulsory motor insurance products in Albania were not liberalized and were regulated by the law of year 1992 and by the legal acts of the Minister of Finance, whereby for domestic TPL and border policies the minimum and maximum tariffs was determined once a year by guidance of Minister of Finance following the recommendations of market specialists. For the green card were applied fixed tariffs based on few years ago. (AMF, Annual Report, 2006). Subsequently, the tariff calculation for the MTPL products was defined in Article 10 of Law No. 10076, dated 12.02.2009 "On compulsory insurance in the transport sector". Although the insurance market was well-regulated, it still displayed problems, as the insurance companies attempted to sell TPL policies below the allowed tariffs.

The Regulation of the MTPL tariffs causes market distortions, both in terms of company profitability and quality of services. In the case of regulated tariffs, a government may fail to adapt these tariffs to the risk, as tariffs are perceived by the consumer more as a tax rather than as benefit. The state intends to keep the premiums as low as possible in order to reduce the number of uninsured people. (Tomeski 2012). Other reasons why mandatory and regulated tariffs may be below the real premium lie in the fact that these tariffs are not updated regularly, they do not consider inflation and it is technically difficult for the government to set a fair premium. In this way, insurance companies try to fill this deficit by delaying the process of claim settlement. There is a clear correlation

Despite the problems of tariff regulation, the liberalization is also accompanied by problems and can lead to market failures and distortions, if this liberalization is premature. The main challenge of switching from a regulated tariff system to a liberalized system is a right and prudent pricing of the products. (Tomeski, 2012). The basic principle of insurance is that the paid premium should be sufficient to cover the expected claims, other administrative costs and provide a profit margin as well. Thus, an insurer survives only if it sets appropriate tariffs for the insurance risk he has taken.

The liberalization of mandatory motor insurance premium tariffs in Albania was undertaken in August 2011 with the entry into force of Law No. 10455, dated 21.7.2011 "On Amendments to Law No. 10 076, dated 12.2.2009" On compulsory insurance in the transport sector ". Article 10, point 2 of this law stipulates that "the insurance company shall determine the insurance premium tariffs themselves, in accordance to the market conditions, and begin to apply them, after informing the Albanian Financial Supervisory Authority. Notwithstanding the insurance companies should have technical reserves and provisions, not less than the level of technical reserves and provisions determined by the Authority." Thus, AFSA intervenes only if the applied tariffs are under the risk premium.

Albania liberalized MTPL tariffs before the arrival of the World Bank mission, which would launch in 2011 the project on the liberalization of compulsory motor insurance. In September 2011, a World Bank mission aimed at assessing market practices for providing MTPL related to reserving and pricing, claim settlements, reinsurance, and so on. It evaluated

the database of claims used by the market for setting the premiums of MTPL products, and it also analyzed the approximation of the legal framework regulating compulsory motor insurance with EU directives, in order to propose policies and processes towards risk-based pricing of compulsory motor insurance products. The report of this mission "The Road Ahead for Albanian Motor" considered the liberalization of MTPL tariffs as premature. The mission stated that although almost every insurance company had an actuary, no one considered them when it came to setting premiums. Since insurance companies were just looking for market shares, they did not take the work of actuaries seriously. The Albanian insurance market should have gone a long way towards liberalization. Markets should be prepared for the shocks deriving from liberalization.

Some conditions should be met before liberalization could take place and the market should be sufficiently mature to face this liberalization. This requires sufficient actuarial expertise, a powerful supervisor (though some years after market liberalization), and sufficient customer awareness. Competitive behavior in the market should also be fair, there should be insurers' stability, technical capacity and discipline in insurance underwriting process as well as a compulsory motor insurance (claim information) database, an association of insurers with a degree of high self-governance and independence as well as an appropriate legal structure with a high role of courts in solving cases. A premature liberalized market leads to instability of the market as well as to the decrease of the capacity to pay claims.

In a liberalized Albanian market it is vital that the two processes: the calculation of reserves and pricing should be supervised and function properly. These two processes are complementary, as an underestimation of the reserves will lead to a low premium estimate, affecting the low ability to pay future claims.

From the countries of the region, Albania and Croatia are the only countries that applied the liberalization of MTPL product tariffs. Other countries like Serbia, Macedonia, Bosnia and Montenegro are still characterized by the regulation of the MTPL tariffs. Regarding Croatia, the obligation for liberalization resulted from its membership in the EU on 01.07.2013. Croatia became the 28th member of the European Union, and on 13.09.2017 it undertook the liberalization of compulsory motor insurance. It was precisely EU membership that created the framework to liberalize MTPL tariffs, with no control by the regulator. Regarding Albania, it would have been more advisable for it to undertake a gradual liberalization, with a preliminary preparation, such as Montenegro. Montenegro decided for a gradual liberalization of the market. Law No.44 "On compulsory insurance in the transport sector" of 2012 stipulated a transition period of five years from a regulated to a liberal market, which means that insurance companies will acquire the freedom to set the tariffs by themselves only after 5 years, thus in 2017. Also in the law of year 2012 it was decided that the minimum limits of liabilities would rise from 150 thousand Euros to 550 Euros in 2015 for

<sup>2</sup> AFSA became an independent institution reporting to the Albanian Parliament only in 2014, three years after the liberalization of MTPL premium tariffs.

personal injuries, while for material damages this limit would be raised from 80 thousand Euros to 300 thousand Euro.

The process of liberalization tariffs in Albania and the region occurred in the framework of the need to comply with the European Motor Insurance Directives, especially with the third directive, which confirms the freedom of setting premiums from insurance companies. Liberalization in Europe took place in 1994 under the European directive "Freedom to Provide Services and Right of Establishment". The creation of a common insurance market in the EU took around 30 years. The first initiative to integrate the European insurance markets took place in 1970 and ended in 1994. The Third European Directive no. 92/49 / EEC and 92/96 / EEC of life and non-life insurance established the basis for the creation of a common European insurance market. The first Generation of Insurance Directives in the 1970's was the first liberalization step, where insurance companies could establish branches but with the control and permission of local regulatory authorities. The second generation of directives, which entered into force in 1988 and 1990, enabled European companies, also based on the principle of freedom of services, to offer their services to another country without the need to establishing branches. However, many restrictions remained. The highest stage in the creation of the Single European Insurance Market was the Third Generation of Insurance Directives, with the law that came into force on 1 July 1994, which foresaw the abolition of state intervention in market regulation. The Third Generation of Insurance Directives envisaged three principles: the principle of the Single European Insurance License, where by obtaining a license in their country, insurance companies are granted the right, even without the permission of the authorities of other countries, to operate in another EU country. The second principle related to the Home Country Control, according to which insurance companies are subject to oversight of their home authorities, regardless of where they operate in the EU. The third principle referred to the focus on solvency supervision.(Sterzynski, 2003). The Fourth Directive provided the procedures for accidents occurring abroad and the establishment of a national vehicle registration system as well as the limitation of liabilities. The Fifth Directive increased the minimum amounts of liability and restructured the procedures for damages abroad.

The time period for the introduction of tariff liberalization in European countries has been different. Thus in France the free tariff regime has been applied since 1986, many years before the European directive on liberalization. In Spain, the freedom to set premiums in the insurance sector was provided in August 1984. In Germany the tariffs were regulated until 1994 and their full liberalization was only completed in 1994. Italy was one of the last Western European countries moving towards liberalization in pursuance of the European Directive of 1994. Until this year the tariff structure was the same for all companies (World Bank, 2009). Austria experienced the liberalization in the 1980s, while Slovenia in 1997. The decision on the liberalization of the EU insurance market on July 1, 1994 was taken in favor of the consumer.

#### IV. EFFECTS OF THE MTPL TARIFFS LIBERALIZATION

Following the abolition of fixed tariffs in 2011 in Albania, mandatory motor insurance premiums have undergone constant fluctuations. The main trend has been the reduction of these tariffs. However after the sharp drop of the premium level, over the years 2011 to 2013, it was recorded an increase in 2014, from 55 Euros in 2013 to 94 Euros in 2014, and an increase by about 20% in August 2016. Also on 1 February 2012, the Competition Authority found the existence of an agreement between several insurance companies and decided to fine them.

In 2014, as a result of premium growth, gross written premiums in Albania grew by about 36.9%, while in 2016 gross written premiums increased by 9.64% compared to the previous year.

Table 3: Fluctuations in average premiums in compulsory motor insurance in Albania (in Euro)

2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
48	64	80	75	60	70	55	94	103	112

Macedonia has shown a stable trend of premium tariffs at the level of 90 Euros, 88 Euros and 88 Euro respectively in 2012, 2013 and 2014.

The effects of liberalization are closely related to a drop in the premium level and a rise in the combined ratio. For highlighting these effects, we can refer to the case of Croatia, where after the liberalization premiums decreased by about 18.51% from 392 million Euros in 2013 to 320 million Euros in year 2014. Before liberalization, Croatia had one of the highest average MTPL tariffs in the region. As a result of EU membership and tariff liberalization in 2013, the average premium level declined by 26% within one single year, from about € 200 to around € 150, reflecting the intensification of competition. As a result, the combined ratio increased from 83.8% in 2012 to 90.3% in 2014. According to a survey of the Competition Authority in Croatia, the liberalization of the MTPL market in Croatia has brought benefits. According to this survey, the market is liberalized and well-structured so that consumers have better choices compared with some years ago. One of the main changes in MTPL tariffs in Croatia was the abolition of pricing criteria, which affected the road carriers of different regions as some carriers registered in some regions of the country paid more than the vehicles registered in another region. Thus instead of premium segmentation by region, insurance companies decided to apply uniform pricing policies for the entire territory. As a result, motor vehicles registered in the Zagreb area for example, which previously paid the double MTPL tariffs compared to other regions, showed a significant decrease in their insurance costs. The Competition Authority in Croatia welcomed this fact and considered the discrimination of vehicles by region of registration as unlogical. (Xprimm, 19.01.2017).

Table 4: Premium Fluctuations in Croatia (in Euro)

2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
156	166	168	169	184	190	193	195	197	198	199	157

Source: InsuranceEurope, 2015

The experience of the liberalization process in some industrialized countries showed another trend. Tariffs increased directly after their liberalization, such as in Italy, which after the liberalization in 1994 experienced an increase of the tariffs. In the years before and immediately after liberalization, premium growth followed the trend of the claim increase. Mandatory motor insurance tariffs, which in Italy have been mandatory since 1968 were designated until 1994 by the so-called Price Committee, which was gathered annually to determine these tariffs based on the recommendations of the expert commission (Philippine Committee). Before 1994, premiums did not respond to inflation and were growing more than inflation. Italy's motor insurance situation changed considerably before and after 1994. It was thought that the third EU directive would stabilize the premium level in the market, but the market did not have positive developments even before liberalization and was not in good condition bringing unexpected results. The tariffs increased considerably. From 1980 to 1994 they increased by over 4 Euros per year, while in the period 1994 to 2004 to 11 Euros per year. The growth of premiums came as a result of many factors such as the increased number of vehicles, high insured amounts, increased frequency of fraud, etc. To stabilize the market, in 2000 the Italian government tried to enforce the antitrust regulation and a tariff freeze. Antitrust law violations were found as a result of agreements between 39 companies out of 81 existing companies. This agreement was considered a contributor to the significant premium growth. For this reason the premiums did not undergo full competition and there was a drop in the products supply. Freezing premium tariffs was another way for the government to control the premiums. This measure prevented further increases in premiums, but caused a violation of the third European directive. The Association of Italian Insurers (ANIA) sent the case to the European Court, as the third directive promotes competition and does not allow the government to restrict competition. The Court concluded that the freezing of premiums was in breach of the directive. (Heikes, 2006).

A similar situation appeared recently in Romania, where the Romanian government imposed the ceiling of a maximum MTPL tariff, thus not complying with the EU and Solvency II rules. The decision became effective on 17 November 2016. These maximum premiums would be applied for a period of 6 months. The European Commission didn't support this decision.

Although Albania has liberalized tariffs in comparison to the other countries in the region, it should be noted that the Bonus-Malus system, which is thought to bring stability to the insurance market, is applicable in these countries, while in Albania it is not yet implemented. Kosovo applies the Bonus-Malus system since 2013, Serbia since 2011, Montenegro since February 2015, and Macedonia since 2006.

V. BONUS-MALUS SYSTEM: SOME CALCULATIONS OF THE EFFECTIVENESS OF THE BONUS-MALUS SYSTEM IN ALBANIA

The European liberalization rule raised concerns as it was considered a threat to the Bonus-Malus system, a system applied in all European Union countries, while in Albania it is expected to be applied starting from January 2018. As mentioned above, the countries of the region have already introduced this system. The main goal of the Bonus-Malus system is to reduce the number of accidents. In 1980 the claims frequency in Europe was 15%, in 2008 it decreased to about 9%. There is still a downward trend of this frequency in Europe. (Insurance Europe, 2016).

Even though after July 1, 1994, no unified Bonus-Malus system could be proposed, this did not constitute a risk for the European countries to continue to use their systems that differ in form and manner of functioning in the European market. Without a unified Bonus-Malus system in Europe, discriminatory situations may arise. If for example, a person who has been living in Germany for 25 years without causing any damage during these years, receives a job offer in another EU country, for example Italy, then he will seek for a cheap insurance in the new state where he is displaced. In Italy he can pay more than in Germany. The reason lies in the fact that insurance can be more expensive in Italy, but also because not all the claim free years in Germany could be recognized in Italy but only for example five years. So, if he was in the best Bonus class in Germany, in Italy he would only be categorized in a higher class paying much more than in Germany.

The question that arises is whether, when paying higher premiums as a result of the categorization in the Malus classes, it will incite the insured to be more careful or the insured person will hesitate to report the claims in order to belong to a lower class leading to a lower claims frequency although this frequency has not decreased in reality. This phenomenon in literature is known as "Hunger for Bonus" and may be one of the issues that will arise from the implementation of the Bonus-Malus system in Albania. Bonus-Hunger is the tendency of a policyholder to not report the small claims and to bear them themselves in order to avoid future costs associated with the categorization to a higher class of Malus. (Ragnar, 1975).

Another problem that may arise during the implementation of Bonus-Malus is the increase of premiums as in the case of Serbia's experience. In Serbia, the companies set MTPL premiums under Bonus-Malus, but the minimum premium is set by the Serbian Association of Insurers and is approved by the Serbian National Bank. In July 2014 the premium tariff increased on average by 40%, from 77 Euros in 2013 to 88 Euros in 2014. This was the second increase after that of year 2008. The reason for the increase was the decrease of the premium volume due to the introduction of the Bonus-Malus system in 2011, as only 1% of policyholders belonged to Malus

classes. This experience should be taken into consideration even in the case of the introduction of Bonus-Malus in Albania.

In literature, the elasticity coefficient serves as a measure of the Bonus-Malus system efficiency. This coefficient was introduced for the first time by Loimaranta (1972). The elasticity coefficient measures the ability of the Bonus-Malus system to respond to claim changes. In other words it means how premiums react when the claim frequency changes. Elasticity usually takes values from 0 to 1. None of the Bonus-Malus systems has elasticity equal to 1.

As in the case of Serbia, our calculations show a premium decrease as a result of the fact that the percentage of people who will be in the Bonus classes will be higher than the population in the Malus classes. This can also lead to increased premium tariffs but also to increased fraud in order to benefit from the bonus classes.

To calculate the elasticity in the case of Albania we built a model based on Loimaranta (1972). Similar studies for other countries were undertaken by Leimar (1998), (Kafkova, 2015), Chen / Li (2014), De Pril (1978), (Mahmoundvand et al 2013), (Whitehead, 1991), Baione et. al (2002), (Topolwksi/ Bernardelli, 2017).

The main formula for calculating elasticity is:

$$\eta(\lambda) = \frac{dp(\lambda)/p(\lambda)}{d\lambda/\lambda} \quad (1)$$

where  $\eta$  is marked as elasticity,  $\lambda$  is the claim frequency and  $p$  expresses the premium paid. In this way, elasticity indicates how much the premium changes when the frequency of damages changes. Normally the premium must change as much as the claim frequency, but this does not happen in any country applying the Bonus-Malus system. The highest elasticity found is the Swiss one at 0.4 (Leimar, 1998).

The model suggests that claims follow the Poisson distribution. This distribution shows the probability of a certain number of claims according to the formula below:

$$P(X=x) = \frac{\lambda^x}{x!} * e^{-\lambda} \quad (2)$$

In this way we can calculate the probabilities that one or more accidents may occur.

Recognizing the fact that the Albanian Bonus-Malus system has 18 classes, we create a matrix with 18 variables. Below is the Bonus-Malus system that is thought to be introduced in Albania, according to the Italian system.

Class/Number Of Claims	0	1	2	3	4	Price Coefficient r(i)
1	1	3	6	9	12	50%
2	1	4	7	10	13	53%
3	2	5	8	11	14	56%
4	3	6	9	12	15	59%
5	4	7	10	13	16	62%
6	5	8	11	14	17	66%
7	6	9	12	15	18	70%
8	7	10	13	16	18	74%
9	8	11	14	17	18	78%
10	9	12	15	18	18	82%
11	10	13	16	18	18	88%
12	11	14	17	18	18	94%
13	12	15	18	18	18	100%
14	13	16	18	18	18	115%
15	14	17	18	18	18	130%
16	15	18	18	18	18	150%
17	16	18	18	18	18	175%
18	17	18	18	18	18	200%

Leimar (1995) describes the Bonus-Malus systems in several countries, such as in Germany, which applies 22 classes, in Italy, which moved from a system with 13 classes moved to the 18 class system etc.

Given the above matrix for the case of Albania, we have solved the so-called Transition Matrix of Markov. This matrix shows us the probabilities of moving from one class to another. For the calculation of such matrix the claim frequency according to the Poisson distribution and the average claim frequency are required. In the case of Albania we take an

average claim frequency equal to 3%. This claim frequency is low due to a low claim reporting. In Italy the claim frequency is about 6%, in Germany it is 8%. (InsuranceEurope, 2016).

The following transition matrix of Markov has resulted from our calculations:

M_matrix	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0.970446	0	0.029113	0	0	0.000437	0	0	4.367E-06	0	0	3.27525E-08	0	0	0	0	0	0
2	0.970446	0	0.029113	0	0	0.000437	0	0	4.367E-06	0	0	3.27525E-08	0	0	0	0	0	0
3	0	0.970446	0	0.029113	0	0	0.000437	0	0	4.367E-06	0	0	3.27525E-08	0	0	0	0	0
4	0	0	0.970446	0	0.029113	0	0	0.0004367	0	0	4.367E-06	0	0	3.27525E-08	0	0	0	0
5	0	0	0	0.970446	0	0.029113	0	0	0.0004367	0	0	4.367E-06	0	0	3.27525E-08	0	0	0
6	0	0	0	0	0.970446	0	0.029113	0	0	0.0004367	0	0	4.367E-06	0	0	3.27525E-08	0	0
7	0	0	0	0	0	0.970446	0	0.0291134	0	0	0.0004367	0	0	4.367E-06	0	0	3.27525E-08	0
8	0	0	0	0	0	0	0.970446	0	0.0291134	0	0	0.0004367	0	0	4.367E-06	0	3.27525E-08	0
9	0	0	0	0	0	0	0	0.970446	0	0.0291134	0	0	0.0004367	0	0	4.367E-06	3.27525E-08	0
10	0	0	0	0	0	0	0	0	0.9704455	0	0.029113366	0	0	0.0004367	0	0	4.39976E-06	0
11	0	0	0	0	0	0	0	0	0	0.9704455	0	0.029113366	0	0	0.0004367	0	4.39976E-06	0
12	0	0	0	0	0	0	0	0	0	0	0.9704455	0	0.029113366	0	0	0.0004367	4.39976E-06	0
13	0	0	0	0	0	0	0	0	0	0	0	0.970445534	0	0.029113366	0	0	0.0004411	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0.970445534	0	0.029113366	0	0.0004411	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0.970445534	0	0.029113366	0.0004411	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.970445534	0	0.029554466	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.970445534	0.029554466	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.970445534	0.029554466

Source: author's calculations

After finding the transition matrix of Markov, we found the so-called stationary probability distribution vector of the

Markov Chain, which shows the percentage of people who will persistently stay in the same class of Bonus-Malus system. The sum of this vector terms equals to 1. This is also the condition to solve the linear system with 18 variables. If  $a_i$  stays for the stable vector, while the matrix is  $M$ , then the linear equation system required to be solved is:

$$M \cdot a_i = a_i, \text{ when it is known that } a_1 + a_2 + \dots + a_{18} = 1.$$

We solved this system using the solver program in Excel and the vector results for a 3% claim frequency are as follows:

$a_1 = 0.93767386$ ,  $a_2 = 0.02855642$ ,  $a_3 = 0.029426093$ ,  $a_4 = 0.002192035$ ,  $a_5 = 0.0014021$ ,  $a_6 = 0.000562017$ ,  $a_7 = 9.1419E-05$ ,  $a_8 = 3.92898E-05$ ,  $a_9 = 1.0384E-05$ ,  $a_{10} = 6.9713E-06$ ,  $a_{11} = 5.37397E-06$ ,  $a_{12} = 4.9732E-06$ ,  $a_{13} = 4.87438E-06$ ,  $a_{14} = 4.84393E-06$ ,  $a_{15} = 4.83758E-06$ ,  $a_{16} = 4.83554E-06$ ,  $a_{17} = 4.83507E-06$ ,  $a_{18} = 4.83495E-06$

Multiplying the coefficients found with the premium coefficients applied to a particular class of Bonus-Malus and by adding the results, it comes out the average stationary premium level, which in the case of Albania results is 50.31 for a claim frequency of 3%. This low value indicates a smooth transition of the Bonus-Malus system. The result shows that the major part of the policyholders will be in the low classes of the Bonus-Malus system. The elasticity according to the elasticity formula for a claim frequency of 3% results to be low at a value of 0.07. The elasticity curve (Loimaranta Elasticity) for Albania is presented as follows:

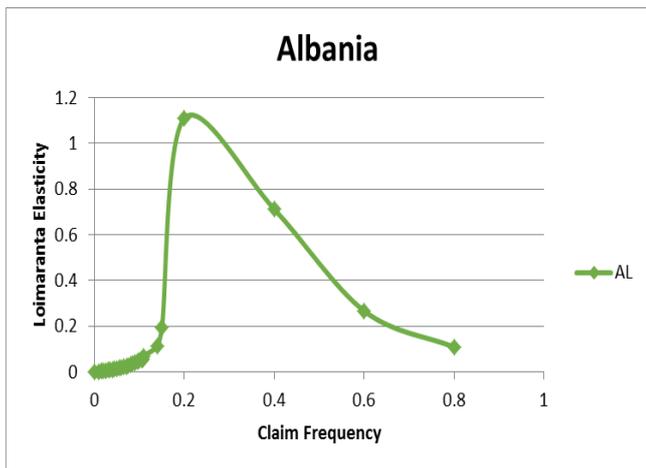


Figure II: Loimaranta elasticity for Albania

Source: Author's calculations

To compare the elasticity values of Albania with other Bonus-Malus systems, we take also the calculated elasticities for the United Kingdom and the Swiss system. The results are presented below:

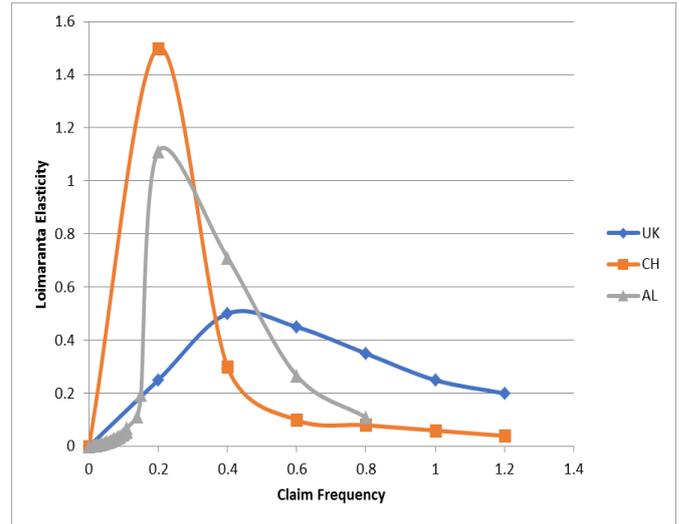


Figure III. Comparison of Loimaranta Elasticity

Source: Author's calculations

As it can be seen, the Swiss system turns out to be more efficient. For a claim frequency of up to 0.2, the Albanian Bonus-Malus system turns out to be more elastic than the British one. The elasticity reaches the value close to 1 only for very high and unusual values of claim frequency. The Swiss system for values of claim frequency up to 0.28 reaches an elasticity value above 1. Even for the Albanian case it is found a high elasticity especially for the claim frequency between 15% and 20%. For low levels of claim frequency the elasticity of the Albanian Bonus-Malus System is lower than in Switzerland and in United Kingdom.

Considering the stationary premium, which is around 50%, it can be said that the good risks will continue to subsidize the bad risks. About 99% of policyholders end up in the first classes and will benefit from the minimum premium, while a small fraction of less than 1% will end up in the Malus classes, indicating that the system penalties are not too high.

An optimal Bonus-Malus system is financially balanced, with a stationary premium of 100 every year, but it has the disadvantage that the penalties are high and encourages an increase of the uninsured number. (Constantinescu 2017). However the level of penalties and the severity of a Bonus-Malus system are also related to the country's economic development, but empirical studies show also a correlation between the culture and the implementation of this system. Referring to the fact that the developed countries apply tougher systems (Park et al. (2010), it would have been better to implement in Albania a simpler system with less classes. Albania should undertake an awareness campaign before implementation. Future studies may consider the performance of insurance companies' financial balance as a result of the Bonus-Malus implementation.

## CONCLUSION

The openness of the insurance market in Albania positively effected the development of the market. Foreign investors showed interest for the insurance sector. The results of this study show a positive correlation between liberalization of the market, foreign capital and the profitability of the companies. Nevertheless, the liberalization of the MTPL premium tariffs in 2011 was associated with a market instability and premium fluctuations. In this regard we suggest the introduction of premium caps for a certain period. Our results show that the implementation of Bonus-Malus system could stabilize the market but it can also be associated with a decrease of claims reporting. The Bonus-Malus system should be simpler and with less classes than the system which is intended to be implemented according to the Italian one.

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