DOI 10.20544/HORIZONS.A.20.1.17.P07
UDC 368.9 (497.7)
368.9 (494)

DEVELOPMENT TRENDS FOR LIFE INSURANCE AT DEVELOPED COUNTRIES AND DEVELOPING COUNTRIES: CASE STUDY ON SWITZERLAND AND REPUBLIC OF MACEDONIA[7]

Urim Aliu MsC, Cvetko Andreeski PhD, Bratislav Milosevic PhD
University St. Kliment Ohridski – Bitola

ABSTRACT

The development of life insurance is triggered by several determinants of socioeconomic origin, which at the same time are the most relevant ones. The most relevant determinant for the development of the life insurance is the Gross Domestic Product. In this paper we made structural analysis on the development of the life insurance in The Republic of Macedonia and Switzerland, but this analysis is extended on some other developing countries in order to get more relevant analysis and results. Besides the fact that the structural model for the development of the life insurance is the same, trends of development for different group of countries are different. The analysis, presentation and characteristics of these differences is one of the aims of this paper.

Keywords: analysis, life insurance, Republic of Macedonia, Switzerland

INTRODUCTION

The analysis of the determinants of the development of the life insurance and the comparative analysis of the development of the life insurance in various countries can give us a view of the influence of various determinants, as well as the degree of their influence in various countries. Many researchers had performed similar researches. Nestorova (2008) inquired the influence of the determinants of the development of the life insurance in the Commonwealth of Independent States- CIS countries, as

[7] Original scientific article

well as in the countries of Central and Eastern Europe- CEE. According to her research ”countries with higher life expectancy at birth, income level, old dependency ratio and countries -members of the European Union have higher levels of life insurance consumption, while financial development indicator, inflation and real interest rate reduce the demand for life insurance across the countries”, (Nestorova, 2008). (Alhassan & Nicholas Biekpe, 2015), investigated the factors for consumption of the life insurance in Africa, and by doing such research they covered 31 countries in the period between 2006 and 2010. According to their research, demographic factors describe the consumption of the life insurance better than the financial factors. (Kjosevski, 2012) made some analysis on identifying determinants of life insurance in 14 countries in Central and South Eastern Europe (CSEE). He takes into account several variables like GDP, inflation, real interest rates, young dependency ratio, old dependency ratio, and control of corruption and government effectiveness.

In order to perform efficient comparative analysis between the life insurance in developing countries (in first place Republic of Macedonia) and one developed country - Switzerland, few parameters that constitute the life insurance in both countries must be taken into consideration. The basic parameters that are taken in the analysis are gross policy premium, number of contracts concluded, number of gross damages paid and the share capital invested from the life insurance companies. There are other parameters, but in this paper, the comparison is made by using these four parameters in order to have a more efficient result. The most used indicators of the development of the life insurance are the degree of density of the life insurance and the degree of penetration, but also a co-relational and regression analysis are performed among gross policy premium, gross domestic product and inflation of the costs of life which are more preciously described in the text bellow.

1. Parameters of the development of the life insurance in The Republic of Macedonia and Switzerland

In this part of the paper a comparison will be conducted between the insurance companies in The Republic of Macedonia and Switzerland.

Chart number 1. The difference in the number of concluded contracts for life insurance in The Republic of Macedonia and Switzerland. [8]

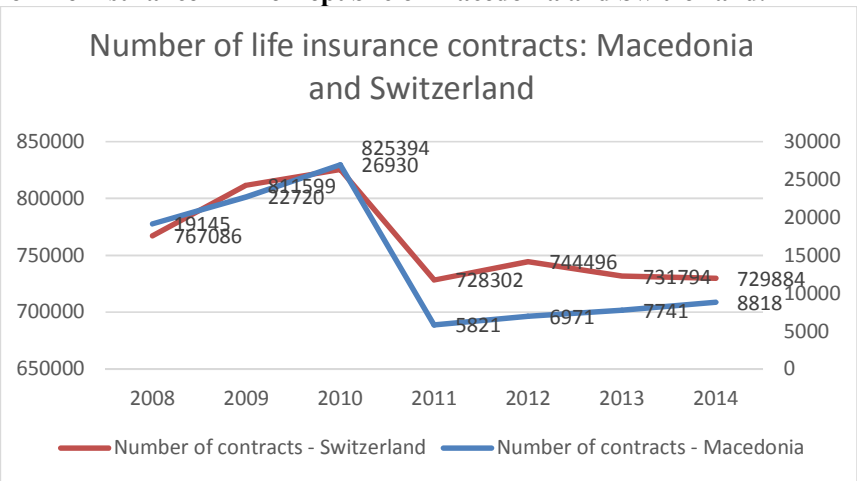
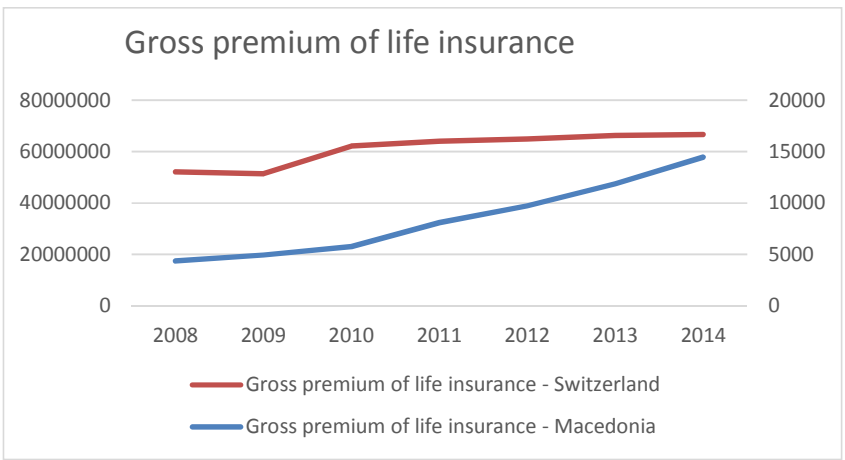


Chart number 2. The difference in the hypothetical gross premium between the life insurance in The Republic of Macedonia and in Switzerland, converted into Euros using the exchange rate of the euro and the frank given by the NBRM; using equal number of residents.



As indicators for measuring the concentration of the premium of life

[8]Sources: stats.oecd.org, aso.mk, makstat.stat.gov.mk

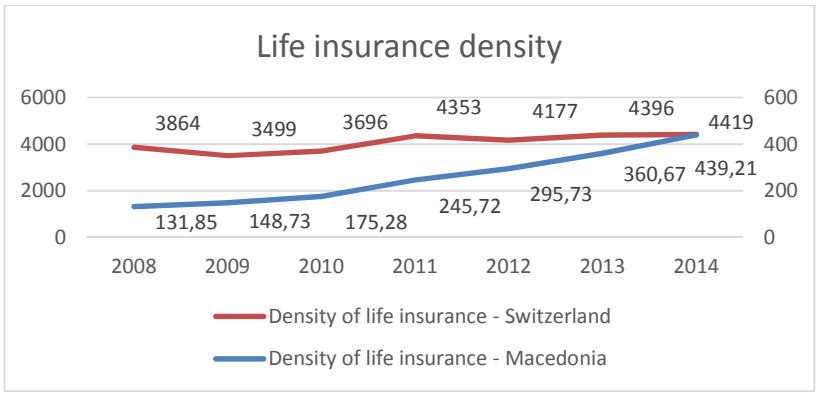
insurance we usually use the degree of density of the life insurance and the degree of penetration of the life insurance. The degree of density of the life insurance is calculated as a ratio between the gross policy premium and the number of residents, while the degree of penetration of the life insurance is calculated as a ratio between the gross policy premium and the gross domestic product. The charts that follow show these two indicators of the life insurance, especially in The Republic of Macedonia and Switzerland, then the difference between these countries considering the life insurance with the same indicators expressed in percentages and the proportion between these two countries.

In Macedonia, in the period between 2008 and 2014 the degree of density of the life insurance went from 131.85 to 439.21 denars, which tells us that each resident of The Republic of Macedonia hypothetically paid 131.85 denars for gross policy premium for life insurance in 2008. The degree of penetration of the life insurance went from 0.06% to 0.17% for the period from 2008 to 2014, which means that the gross policy premium of the life insurance is 0.06% compared to the gross domestic product.

In Switzerland for the period from 2008 to 2014 the degree of density of the life insurance went from 3,864 to 4,419 franks, which tells us that each resident of Switzerland hypothetically paid 3,864 francs for gross policy premium for life insurance for the year 2008. However, a difference in the trends of growth of the density of the life insurance can be noticed. If we calculate the percentage of growth of the life insurance in Switzerland and The Republic of Macedonia, we can draw a conclusion that the increase in Switzerland for the period of the seven years that were surveyed is something more than 14%, or an average of 2% a year, while in The Republic of Macedonia the increase is more than 233% or more than 33% a year. On one side it denotes that the life insurance market in Switzerland has been saturated by offers and consumption of the life insurances, while in The Republic of Macedonia the claim for life insurance is still great and we can also expect a further development. The density of the life insurance shows that a greater number of people who are insured, bought the life insurance in a particular country for the period that had been analyzed.

The degree of penetration of the life insurance went from 4.96% to 5.08% for the period between 2008 and 2014, which means that the gross policy premium of life insurance is 4.96% compared to the gross domestic product in Switzerland.

Chart number 3. Degree of density of the life insurance



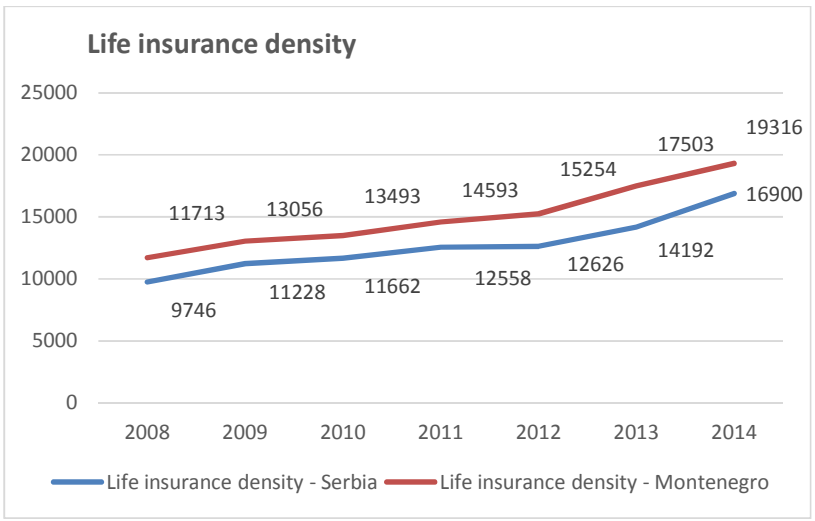
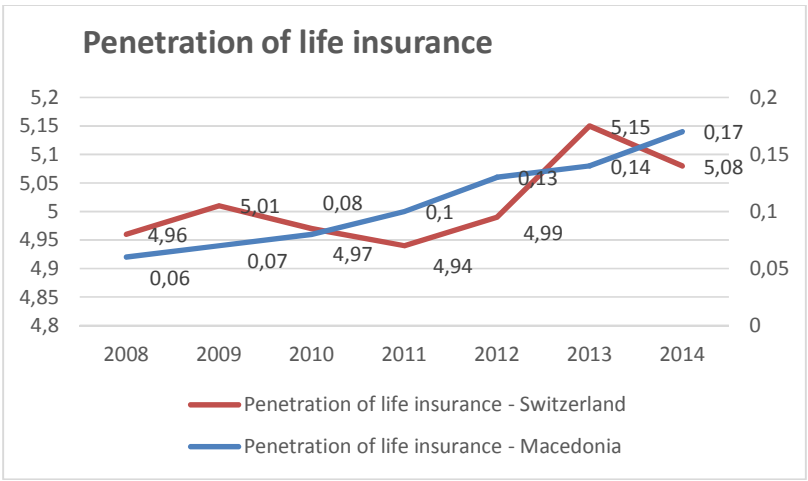
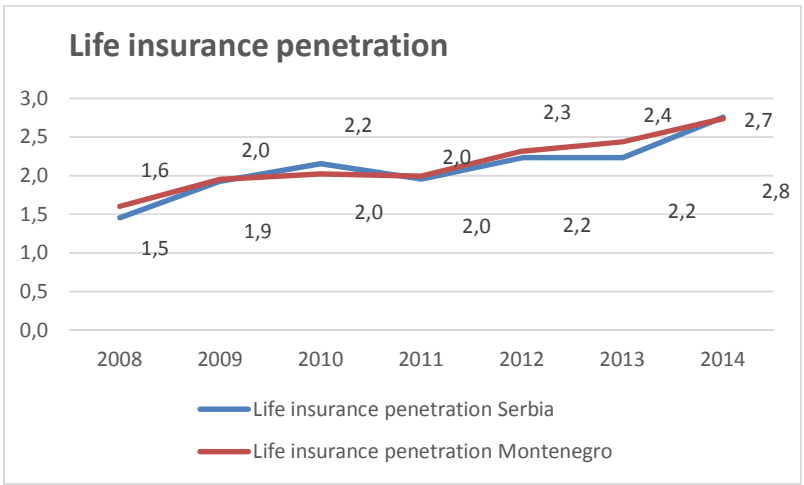


Chart number 4. Degree of penetration of life insurance





In order to perform a correct comparison between the densities of the life insurance, first of all we have to convert denars and franks into euros. In Macedonia the degree of density of the life insurance goes from 2.15 euros in 2008 to 7.15 euros in 2014, in Switzerland it goes from 2.569 euros in 2008 to 3.294 euros in 2014. The difference in 2008 is 1.195 times higher in Switzerland, which shows a significantly greater purchasing power of the people insured in Switzerland.

In Macedonia the degree of penetration of the life insurance goes from

0.06% in 2008 to 0.17% in 2014 (that is to say 0.2 in 2015), in Switzerland it goes from 4.96% in 2008 to 5.08% in 2014.

The percentile increase of the penetration of the life insurance in Republic Switzerland is 2.4% for the seven years that were studied, while in The Republic of Macedonia the same increase is more than 183% or more than 26% annually, the participation of the life insurance in the GDP of The Republic of Macedonia increases. We have similar results for other developing countries on the Balkans. The percentage of growth is almost the same as for the Republic of Macedonia (186% for seven years). Although the life insurance is not developed enough in The Republic of Macedonia (it participates with 15.34% in the whole range of insurances), the degree of development shows a dynamic development of the life insurance in The Republic of Macedonia and the growth of the influence of this type of insurance. In 2014, the degree of participation of the life insurance in the whole range of insurances in Switzerland is 48.5%, but if you look at that same information in 2008 we will notice that it has decreased from the starting 51.2% to 48.5%. If you know that the life insurance has a saving component which is an internal source of investments in each country, then this degree of development becomes even more significant.

The degree of penetration of the life insurance in Macedonia is 0.01% of the degree of penetration in Switzerland in 2008 and 0.03% in 2014. Although this percentage is small, again it denotes the good dynamic development of this type of insurance.

2. Structural analysis of the life insurance in Macedonia and Switzerland

Co-relational matrices used in the research while writing this paper are given in the annex of this paper.

Co-relational analysis means analysis of the degree of dependency of the variables, and at the same time the direction between one dependent variable and one or more other independent variables. The coefficient of co-relation shows the strength between two variables, the closer the coefficient to 1 is the stronger the relation between them is.

The indicators of the co-relational analysis consist of:

- The coefficient of co-relation shows the ratio of two variables and has the values from -1 to 1 and shows a strong connection or functional connection between two variables. The values 0.0 show weak co-relational connection, the negative values show inverse dependency, while the positive reports show positive dependency.
- The coefficient of determination is square coefficient of co-relation and

receives the values from 0 to 1.

- The coefficient of the alliance shows how many percent of the dependent variable are unexplained. $K=1-r^2$

At the end t-test is performed for co-relation coefficient.

From the above given tables of co-relational analysis in both countries we can notice that both of the variables are in a great positive co-relation. That means that the gross policy premium of the life insurance a great deal depends on the gross domestic product, in Macedonia that is 0.99, while in Switzerland it is 0.96, which tells us that in the both countries the gross domestic product is greatly significant and represents, besides the other factors, a main factor for increase and development of the life insurance in Switzerland, and especially in The Republic of Macedonia where this factor is greatly emphasized.

SPSS program has been used in the process of making the regression model.

The regression analysis shows the linear dependency of the dependent variable, in this case BPP from the independent variable, in this case BDP. In the regression model, upon the coefficient analysis made, an absolute C_0 is used.

The formula for the regression analysis is: $BPP=C_0+C_1BDP+\square_0$ (GAP, GDP)

where C_0 and C_1 are parameters that are received from the co-relational analysis, and $\square_0$ are the values of the residual of the model.

In this case we have the parameters BPP (GAP)- dependent variable and BDP(GDP)- independent variable, in both of the models an absolute or interceptor in the model is included.. In this model the parameter of inflation as an independent variable is not taken, because its degree of co-relation is small and negative, and at the same time it is not independent considering the included variable BDP (GDP).

From the pertained statistics of the model of regression analysis of the development of the life insurance in Macedonia, we can make the following conclusion: the value of F statistics is big enough for this model to be accepted as valid. And the probability of the F statistics denotes the same conclusion. Durbin Watson statistics has value greater than 2, which denotes a possible serial co-relation. From the analysis of the residuals we can conclude that the average value of the residuals is zero, and the standards deviation is close to 1, that indicates that the residuals are apportioned normally.

Similar values has also the model for Switzerland. The values of F statistics are smaller in relation to the ones from the previous model, but big

enough for the model to be valid. Durbin Watsen statistics is with value closer to 2, which indicates to uncorrelated residuals. That is additionally ascertained also by using the analysis of the residuals.

According to the statistical data given by the National Biro of insurance of The Republic of Macedonia, the number of concluded contracts for life insurance made by the companies which have license from the Agency for supervision of insurance, for performing activities such as life insurance, Croatia life, Wiener life, Grawe life, Unica life and Qubi life, for the previous seven years is as it is shown in graph 1. In the same graph, also, you can see the number of concluded contracts for life insurance in Switzerland according to the statistical data taken from the National Biro of insurance in Switzerland FINMA.

Table number 7. Difference between the number of people who have concluded contract for life insurance based on an equal number of residents in Macedonia and in Switzerland.

Year	MKD	SW	SW/ MKD	Residents	Difference	No. Contracts	Residents	Results
2008	19.415	767.086	39.5	3.8	10.39	767.086	3.8	201.864
2009	22.720	811.599	35.72	3.85	9.27	811.599	3.85	210.804
2010	26.930	825.394	30.64	3.89	7.87	825.394	3.89	212.183
2011	5.821	728.302	125.1	3.93	31.83	728.302	3.93	185.318
2012	6.971	744.496	106.8	3.97	26.89	744.496	3.97	187.530
2013	7.741	731.794	94.53	4.02	23.51	781.794	4.02	194.476
2014	8.818	729.884	82.77	4.07	20.33	729.884	4.07	179.332

In order to perform an efficient analysis of the comparative research of the life insurance between these two countries on the bases of gross policy premium, number of contracts concluded, payment of reported damages, as well as the share capital, it is necessary to previously have the statistical data of the census of the residents of Macedonia and Switzerland. In The Republic of Macedonia, the census was carried out in 2002, where according to the statistical data the number of residents in The Republic of Macedonia is 2,022,547 residents[9] , while in Switzerland from the year 2008 we have statistic data for the number of the residents, and that is: in 2008 there are 7,701,856 residents, in 2009 there are 7,785,806 residents, in 2010 there are 7,870,134 residents, in 2011 there are 7,954,662 residents, in 2012 there are 8,039,060 residents, in 2013 there are 8,139,631 residents and in 2014 there are 8,237,666 residents[10]. The ratio of the number of the residents in 2008

[9]State institute for statistics in The Republic of Macedonia
[10]FSO ch www.bfs.admin.ch reports for 2008, 2009, 2010, 2011, 2012, 2013, 2014.

shows 3.80 times more residents in Switzerland,, in 2009, 3.85 times, in 2010, 3.89 times, in 2011, 3.93 times, in 2012, 3.97 times, in 2013, 4.02 times and in 2014, 4.07 times more residents in Switzerland. According to this data the number of people that have concluded contracts for life insurance differs in a great extent, and that is for example in 2008 the ratio is one to 39.50, in other words 39.50 divided by 3.80 times results in 10.39, which means that if the hypothetical number of residents in both countries becomes equal, the result will be one to ten in favor of Switzerland , which is shown in the table 7.

In the process of doing the analysis we checked the influence of the increase of the number of residents on the range of gross policy premium in Switzerland. The degree of co-relation of these two variables is 0.89 high, and at the same time the increase of the number of residents in Switzerland shows a high degree of positive co-relation with GDP (0.88). Because of that, the growth of population cannot be used as an independent variable in modeling the series of gross policy premium.

2.1. Model with panel data for five countries

For the analysis of the model for many countries, we made model with panel data for five countries that are taken into analysis. Besides the Macedonia and Switzerland, we have presented data for gross written premium and gross domestic product for Serbia, Montenegro and Bulgaria. For the analysis we've used two model for panel data analysis: Fixed effect or LSDV and Random effect model. These models are taken into consideration because of the differences between the analyzed series. Results are given in Table 5 of the Appendix of this paper. In the results of both models we can realize that gross domestic product is valid parameter and we cannot be rejected from the model. That gives the confirmation on the previous analysis. In order to have the appropriate model for the analysis, we've made a Hausman Test. Results are given in Table 6. From the results of the Hausman Test we can see that the probability to accept the null hypothesis is lower than 5%, so we can conclude than apropriate model for these data is Fixed Effect Model. Somehow we expect such a results, because the mean value of each series included into analysis is different. The analysis on panel data is done by data taken from the Swiss Re Sigma web page.

2.2. An average monthly gross payment of the people with life insurance in The Republic of Macedonia and Switzerland

In The Republic of Macedonia the average monthly payment inclusively by December 2008 was 28,318 denars, for 2009 was 30,611 denars, for 2010 was 31,435 denars, for 2011 was 31,338 denars, for 2012 was 31,466 denars, for 2013 was 31,498 denars and for 2014 was 32,741denars.[11] We can notice that in 2008 the average monthly gross payment is the lowest, and that reflects on two factors that are: because of the introduction of the gross payment, that is allowance for food and travel expenses were not covered in the payment, and the other factor is the increase of 5% in the following three years.

In Switzerland the average monthly payment inclusively by December 2006 was 5,623 franks, for 2007 was 5,623 franks, for 2008 was 5,781 franks, for 2009 was 5,781 franks, for 2010 was 5,929 franks, for 2011 was 5,929 franks, for 2012 was 6,118 franks, for 2013 was 6,118 franks and for 2014 was 6,416 Swiss francs.[12]

In order to carry out a comparative analysis of the average monthly payment, we are previously forced to convert the two currencies into euros, that is to say the franks and the denars used in the average gross monthly payment have to be converted into euros. According to the exchange rate given by the National Bank of The Republic of Macedonia, from the reports given for each year based on 31.12 for the current month, the franks are converted into denars and then into euros using the exchange rate of the appropriate year, while for the average gross monthly payment in Macedonia, the denars are converted according to the exchange rate every year.

[11] State Institute for statistics of The Republic of Macedonia, financial reports for 2008, 2009, 2010, 2011, 2012, 2013, 2014.

[12] FSO Swisee

Table number 8. Average monthly gross payment in Macedonia[13]

Year	Denars	Euros	euro/denar
2008	28.318	461.13	61.41
2009	30.611	502.97	60.86
2010	31.435	511.13	61.50
2011	31.338	509.56	61.50
2012	31.466	511.64	61.50
2013	31.498	512.07	61.51
2014	32.742	532.54	61.48

Table number 9. Average monthly gross payment in Switzerland[14]

Year	Franks	Euro	euro/denar	frank/denar	G/E
2008	5.781	3863.41	61.41	41.04	0.668295
2009	5.781	3885.97	60.86	40.91	0.672198
2010	5.929	4752.84	61.50	49.30	0.801626
2011	5.929	4877.20	61.50	50.59	0.822601
2012	6.118	5064.10	61.50	50.91	0.827804
2013	6.118	4990.08	61.51	50.17	0.815639
2014	6.416	5333.79	61.48	51.11	0.831327

For the purposes of this paper a co-relational analysis of the gross policy premium with the average salary and GDP of Switzerland has been performed. The results are given in table 8.

Table number 10. Co-relational matrices

	GAP	Average payment	GDP
GAP	1,000	0,986	0,909
Avarage payment	0,986	1,000	0,899
GDP	0,909	0,899	1,000

From the table number 9 we can notice that the co-relation between the GAP and the average payment is higher, than the GAP and GDP. According to this, the average payment should be taken as independent variable while modeling the series of GAP. Anyway, the other parameters (F-statistics Rsqr statistics and Durbin-Watson's statistics) indicate that such chosen models are invalid. We can get an

[13]Report for NBRM exchange rate, 2008, 2009, 2010, 2011, 2012, 2013, 2014
[14]Report for NBRM exchange rate, 2008, 2009, 2010, 2011, 2012, 2013, 2014, FSO SWISSE

improvement for the model for Switzerland if we do not use an absolute in the model where the independent variable is GDP.

From the data stated in the tables, especially for the average monthly gross payment in Macedonia and in Switzerland, we can notice that the difference in the average monthly gross payments in both of the countries is very high. The average for seven years from 2008 to 2014 for the average gross monthly payments in Macedonia is 505.86 euros, while in Switzerland it is 4,538.19 euros. In the following text these average payments for seven years (2008 to 2014) will be the base for more efficient comparative analysis. The difference in these two payments is 8.97. That means that the average gross payment in Switzerland for those years is almost nine times higher. If we take into consideration that the essential needed items of the consumers in both of the countries are almost identical, while the prices of the food that the consumer needs to have every day are almost identical, we can draw up a conclusion that the potential clients of the life insurance cannot afford to conclude a contract for life insurance. Monthly payments play a great role in the decision making for purchasing life insurance, however in Macedonia we notice an increase of life insurance despite the low income, which indicates that our citizens are more frequently interested in life insurance.

3. Conclusion

We made some analysis on the trends of life insurance in some developing countries on the Balkans, and Switzerland as a developed country with developed market of life insurance. We made the structural analysis on life insurance, and at the basis of the determinants of life insurance we can conclude that we have the same determinants important for the development of life insurance in analyzed countries. The resulting models, even based on one depended variable, are valid according to supporting statistics. However, the penetration of life insurance and density shows the differences in the trends in the developing countries and Switzerland. While the penetration in developing countries have the average growth rate of more than 25% every year, the penetration in Switzerland is only 2.4% for seven years. The same proportion we have for the growth rate of then life insurance density. We can conclude that the development of the life insurance is the “S” shaped function which has an intensive growth rate at the beginning, linear trend in the middle and low growth rate at the developed countries. These stages are detected with our analysis also.

For the conclusive results on the analysis we also made the model with panel data for the analyzed countries. The results in this analysis is that appropriate model for analyzed data is Fixed Effect Model, because the

mean value of each series included into analysis is different, but also, the series have different dynamics, but the relation with dependent variable is significant for all series.

REFERENCES

Alhassan, A. L., & Nicholas Biekpe. (2015). Determinants of life insurance consumption in Africa. *Research in International Business and Finance*, 17-27.

Altman E., I. V. (1995). *The Financial Dynamics of the Insurance Industry.* New York: Irwin Professional Publishing.

Arena Marko. (2006, December). Does Insurance Market Activity Promote Economik Growth.

B., M. (1995). *Methods for Development Work and Research.* New Delhi.

Borch, K. (1974). *The Mathermatical Theory of Insurance.* London: Chamoan and Haii .

De Nardi, M., French, E., & Jones, J. B. (2009). *Life expectancy and Old Age savings.* American Economic Review.

G, D., & Steele J. T. . (2000). *Introduction to the Insurance, 2nd Edition.* London: Financial Times, Pitman Publishing.

H., G. (1997). *Life Insurance Mathematics.* Zurich: Swiss Association of Actuaries.

K., B. (1998). *International Risk and Insurance: An Environmental Managerial Approach.* Chicago: Irwin/McGraw-Hill.

Kjosevski, J. (2012). The Determinants of Life Insurance Demand. *International Journal of Econimics and Finance*, 237-247.

Nestorova, D. (2008). Determinants of the demand for the life insurance: Evidence from selected CIS and CEE countries. Kyev: Kyiv-Mohyla Academy.

Pesic, M. (2005). *Ulaganje sredstva zivotnog osiguranja, bitna sastavnica marketing miska osiguravajuceg drustva.* Zagreb: Ekonomski pregled.

Баткоска, Л. (2005). *Методологија на научно истражување.* Охрид: ЦНИР.

Јованоски, П. (2004). *Финансиски пазар и институции.* Скопје.

Јованоски, Т. (2005). *Економика на осигурувањето.* Скопје.

Караџова, В. (2006). *Управување со ризиците во осигурувањето.* Охрид: ЦНИР.

М, Ж. (2004). *Перспективи на осигурувањето.* Белград: Факултет за финансиски менаџмент и осигурување при Универзитетот Сингидунум.

Машиќ, Н. (2008). *Животно осигурување - основни принципи.* Загреб: Профил интернационал.

Милошевиќ, Б. (2010). *Организација и управување со животни и здравствени компании за осигурување.* Охрид : ЦНИР.

Милошевиќ, Б. (2010). *Ризик и осигурување.* Охрид: ЦНИР.

Николоски, А. (2005). *Осигурување во бизнисот.* Скопје: ФОН.

Петкоски, М. (2010). *Современ финансиски систем.* Скопје.

Попоски, К. (2006). *Улогата на осигурителните компании врз развојот на пазарот на капитал.* Скопје: Економски факултет.

Стојаноски, Ј., & Ќосески, Ј. (2009). *Канали на продажба.* Охрид: ЦНИР

WEB PAGES

www.akutelno.me
www.allianz.com
www.ano.me
www.aso.mk
www.bfs.admin.ch
www.biznisnovine.rs
www.cev.eu
www.crm.com.mk/
www.cro.mk
www.dadalos.org/frieden_mzd/grundkurs_4/konflikt.htm
www.economywatch.com
www.ekonomski.files.wordpress.
www.exminer.com
www.finma.ch/de/dokumentation/finma-publikationen/berichte/versicherungsbericht/
www.grave.me
www.guide.couchdb.org/draft/conflicts.html
www.kliknime.com.mk.osiguruvanje.html
www.kliknime.com.mk/agencial na –vlada na.rm.html
www.lifinsureusa.com
www.nbrm.mk
www.positivesharing.com/2006/07/5-essential-steps-to-resolve-a-conflict-at-work/
www.primacons.com.mk/konflikti-vo-organizacijata-i-nivno-nadminuvanje.html
www.stat.gov.mk/
www.stats.oecd.org
www.svv.ch/de/zalen-und-fakten
www.swissre.com/sigma/
www.versichererreport.finma.ch/reportportal

www.xbrl.org/proiect/

APPENDIX

Table number 1. Co-relation of matrices between the GAP, GDP and an index of life expences in Macedonia

	GAP	GDP	INFLATION
GAP	1	0.99003948	-0.363181674
GDP	0.99003948	1	-0.334660836
INFLATION	-0.363181674	-0.334660836	1

CO-RELATIONAL ANALYSIS IN SWITZERLAND

Table number 2. Co-relation between GAP, GDP and an index of life expences in Switzerland

	GAP	GDP	INFLATION
GAP	1	0.962090737	-0.409682533
GDP	0.962090737	1	-0.362657742
INFLATION	-0.40968253	-0.36265774	1

```
REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA CHANGE
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT BPP
  /METHOD=ENTER BDP
  /RESIDUALS DURBIN.
```

Regression

```
[DataSet0]
```

Table number 3. Regression analysis between GAP and GDP in Macedonia

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	BDP[a]	.	Enter

a. All requested variables entered.
b. Dependent Variable: BPP

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.193E11	1	3.193E11	247.247	.000[a]
	Residual	6.457E9	5	1.291E9		
	Total	3.258E11	6			

a. Predictors: (Constant), BDP
b. Dependent Variable: BPP

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.990[a]	.980	.976	35937.32252	.980	247.247	1	5	.000	2.568

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	BDP[a]	.	Enter

a. Predictors: (Constant), BDP
b. Dependent Variable: BPP

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-2011369	161512.56		-12.453	0
	BDP	0.005	0	0.99	15.724	0

a. Dependent Variable: BPP

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	BDP[a]	.	Enter

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	267436.0938	878718.1250	519273.0000	230693.71140	7
Residual	-42855.40625	44455.39844	.00000	32806.13700	7
Std. Predicted Value	-1.092	1.558	.000	1.000	7
Std. Residual	-1.193	1.237	.000	.913	7

a. Dependent Variable: BPP

```
NEW FILE.
DATASET NAME DataSet1 WINDOW=FRONT.
```

```
REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA CHANGE
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT BPP
  /METHOD=ENTER BDP
  /SCATTERPLOT=(BPP ,*ZPRED)
  /RESIDUALS DURBIN.
```

Regression

```
[DataSet1]
```

Table number 4. Regression analysis between GAP and GDP in Switzerland

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	BDP[a]	.	Enter

a. All requested variables entered.
b. Dependent Variable: BPP

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	BDP[a]	.	Enter

1	.962[a]	.926	.911	400129.60645	.926	62.221	1	5	.001	2.022

a. Predictors: (Constant), BDP
b. Dependent Variable: BPP

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.962E12	1	9.962E12	62.221	.001[a]
	Residual	8.005E11	5	1.601E11		
	Total	1.076E13	6			

a. Predictors: (Constant), BDP
b. Dependent Variable: BPP

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-8839280.846	5037453.517		-1.755	.140
	BDP	.065	.008	.962	7.888	.001

a. Dependent Variable: BPP

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	29030386.0000	32590862.0000	30878416.5714	1288528.06236	7
Residual	-485298.78125	551968.56250	.00000	365266.68563	7
Std. Predicted Value	-1.434	1.329	.000	1.000	7
Std. Residual	-1.213	1.379	.000	.913	7

a. Dependent Variable: BPP

Table number 5. Regression analysis where independent variable is the average payment

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	prosecna_plata[b]	.	Enter

a. Dependent Variable: BPP
b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,812[a]	,660	,592	4188359,42823	,660	9,694	1	5	,026	1,307

a. Predictors: (Constant), prosecna_plata
b. Dependent Variable: BPP

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17005046759 8142,500	1	17005046759 8142,500	9,694	,026[b]
	Residual	87711773500 358,310	5	17542354700 071,662		
	Total	25776224109 8500,800	6			

a. Dependent Variable: BPP
b. Predictors: (Constant), prosecna_plata

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	(80597324,203)	45522104,381		(1,771)	,137
	prosecna_plata	23567,278	7569,452	,812	3,113	,026

a. Dependent Variable: BPP

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	55645108,0000	70610328,0000	61048749,1429	5323696,51649	7
Residual	(4278455,0000)	4836960,0000	,00000	3823431,56297	7
Std. Predicted Value	(1,015)	1,796	,000	1,000	7
Std. Residual	(1,022)	1,155	,000	,913	7

a. Dependent Variable: BPP

Table 5: Panel data mode for 5 countries (Macedonia, Serbia, Montenegro, Bulgaria and Switzerland)

Dependent Variable: BPP
Method: Panel Least Squares
Date: 07/26/16 Time: 22:20
Sample: 2008 2014
Periods included: 7
Cross-sections included: 5
Total panel (balanced) observations: 35

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-179894.0	1086757.	-0.165533	0.8697
BDP	83394.26	7162.260	11.64357	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.997848	Mean dependent var	12231793
Adjusted R-squared	0.997477	S.D. dependent var	24917444
S.E. of regression	1251504.	Akaike info criterion	31.07239
Sum squared resid	4.54E+13	Schwarz criterion	31.33903
Log likelihood	-537.7669	Hannan-Quinn criter.	31.16444
F-statistic	2689.776	Durbin-Watson stat	3.159074
Prob(F-statistic)	0.000000		

Dependent Variable: BPP
Method: Panel EGLS (Cross-section random effects)
Date: 07/26/16 Time: 22:27
Sample: 2008 2014
Periods included: 7
Cross-sections included: 5
Total panel (balanced) observations: 35
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.

C	-1994129.	1244034.	-1.602953	0.1185
BDP	95584.12	3848.091	24.83936	0.0000

Effects Specification		
	S.D.	Rho
Cross-section random	2423703.	0.7895
Idiosyncratic random	1251504.	0.2105

Weighted Statistics			
R-squared	0.944765	Mean dependent var	2343023.
Adjusted R-squared	0.943091	S.D. dependent var	5484932.
S.E. of regression	1308462.	Sum squared resid	5.65E+13
F-statistic	564.4468	Durbin-Watson stat	2.949974
Prob(F-statistic)	0.000000		

Table 6.

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	4.072133	1	0.0436

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
BDP	83394.25 8173	95584.121 570	36490159. 592465	0.0436

Cross-section random effects test equation:
Dependent Variable: BPP
Method: Panel Least Squares
Date: 07/26/16 Time: 22:28
Sample: 2008 2014
Periods included: 7
Cross-sections included: 5
Total panel (balanced) observations: 35

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-179894.0	1086757.	-0.165533	0.8697
BDP	83394.26	7162.260	11.64357	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.997848	Mean dependent var	12231793
Adjusted R-squared	0.997477	S.D. dependent var	24917444
S.E. of regression	1251504.	Akaike info criterion	31.07239
Sum squared resid	4.54E+13	Schwarz criterion	31.33903
Log likelihood	-537.7669	Hannan-Quinn criter.	31.16444
F-statistic	2689.776	Durbin-Watson stat	3.159074
Prob(F-statistic)	0.000000		