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HAVE THE ALBANIAN SMEs THE POSSIBILITY TO PROTECT AGAINST RISK?

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Abstract

This paper identified the fact whether Albanian SMEs are protected from the risk which they faced. For the successful implementation of this paper we studied SMEs in the region of Gjirokastra, which we have interviewed through a questionnaire. This questionnaire gathered qualitative data, which were measured through the Likert scale with 5 levels. These data were processed with the statistical software SPSS version 21, through the binary logistic regression model, which showed the probability of occurrence of the event under the influence of all independent variables. From statistical processing resulted that elements like debt ratio, debt impact, rapid changing in tax legislation and forecast of economic results indicate the level of risk recognition by Albanian SMEs and their protective capacities against it. At the end of the paper resulted that Albanian SMEs have taken concrete actions to protect against risk.

Keyword: SMEs, risk, risk protection, Gjirokastra- Albania

INTRODUCTION

SME are one of the most powerful engines of the country's economic development. Not only in the developed countries, but also in the developing countries, SMEs occupy an important place in the economy. According to Altman et al (2009) it is noted that SME are the most dominant form of business type in OECD countries and in addition they have employed 2/3 of the workforce. In the most developed countries of the world, such as USA and United Kingdom, SMEs play an important role in the economy, occupying a specific weight of about 1/3 of industrial employment and a slightly lower percentage of output.

Albania, as a country with a developing economy has a large number of SMEs compared to other forms of business. According to data, their number is 101917, whereas the total number of businesses is 102767, which means that they occupy about 99% of the total number of businesses in Albania, while 1% consists of big businesses (INSTAT – Tiranë, 2013).

SMEs is that group of business that faces the most with the frequent changes that occur in the market in which they operate, as a consequence they face often with bankruptcy, failures, financial difficulties, lack of liquidity, credit difficulties, unqualified staff and many other difficulties. Thus, the activity of SMEs is very risked and therefore they should know how to protect themselves from risk. The risk that they are facing in their daily activities, in making decisions, their implementation in practice, the absorption of personnel, as well as other issues is very different from the risk that big enterprises are facing.

The definition of SMEs is different for different countries. In Albania, according to Law no. 8957, dated 17.10.2002 "On Small and Medium Enterprises", as amended, it is written the definition of what is called micro-enterprise, small enterprise and medium enterprise. Micro enterprises are the enterprises which employ up to 9 employees and their annual economic turnover does not exceed the amount of 10 million lek (Albanian currency). Small enterprises are the enterprises which employ from 10 to 49 employees and their annual balance sheet is less than 50 million lek. Medium enterprises are the enterprises that employ from 50 to 249 employees and their annual balance sheet is less than 250 million lek.

In this paper we intend to determine as accurately as we can, whether these enterprises are protected to the risk they are facing.

The research objectives and hypothesis

The general objective of this paper is the identification of protective measures that take Albanian SMEs to protect against risk. In order to achieve the main objective, we have raised the following research questions:

1. Does the use of debt resulted in activity growth and increase of earnings to Albanian SMEs?
2. Are Albanian SMEs able to forecast future flows in order to eliminate the possibility of large fluctuations between forecasted and realized flows?

To support the overall objective and the research questions, we have the below hypothesis:
H1 – Albanian SMEs which recognize risk are prepared to defend against it.

REVIEW OF LITERATURE

With regard to risk, the literature is very rich. Risk is viewed in two perspectives (1) the first concept describes risk from a negative perspective, considering it as a threat for losses, while (2) under the second concept, the risk is treated as a neutral concept, which means that it is not only a threat but also an opportunity (Fabozzi and Peterson 2003). According to Smith (2012) the concept of risk can be viewed as combined with uncertainty, giving the perception that it is the uncertainty that leads to the birth of risk. Events, in which there is lack of forecast, carry within themselves risk, even though the results of these events can be predicted with an objective probability. Results affected by risk, carry in themselves the possibility of occurrence of multiple values (Valsamakis et al. – 2000). From business view, uncertainty and risk also, affect the achievement of organizational objectives (McNamme, 1998).
According to Spekman and Davis (2004), we should take into consideration the following aspects of risk:

- Risk can be defined by an objective assessment (for example, currency disposal) or from a subjective assessment (for example, an individual assessment, thus consisted in certain actions)
- Risk is defined in individual and organizational level (Spira & Page, 2003).
- Risk acceptance is influenced by the behavior of the group in comparison with individual actions (Giliberto & Varaiya, 1989).

According to Bowling et al (2003) is highlighted the fact that the risk is integral part of all business activities and it affects all managerial levels. Business leaders face risks that are caused by external forces beyond the business capacity to control these forces. These external forces are combined with a large number of internal forces, such as changes in organizational structure and should be well managed (Spira & Page, 2003).

SMEs need to control and manage their risk. In order to control a risk or manage it effectively, it should be defined its nature, the probability of its occurrence and its impact. Risk

management process provides an effective and structured approach for identification, assessment and control of it. Even though the effective control of risk exposure effects the reduction of potential losses, it cannot eliminate adverse occurrences when occurring. A structured assessment of risk environment increases the possibility for addressing risk and provides financial protection to organizations from the impact of negative occurrences (Andersen & Terp, 2006).

METHODOLOGY

For the successful implementation of this paper relied on the study of two statistical data types: primary and secondary. Primary data obtained directly from enterprises through interviews with the help of a questionnaire, which drafted to collect qualitative data. Secondary data provided using contemporary literature (which supports this paper theoretically), official records of the Albanian institutions and other sources according to the needs of the study.

In Gjirokastra region, about 2814 economic entities extend their activity, from the SMEs group (INSTAT - Tiranë 2014). These businesses carry out activities in various fields like retail trade, wholesale trade, construction, manufacturing, industrial food articles, cafes, hotels, tourism. The study carried out taking into analysis a significant number of businesses in Gjirokastra region, which were in the category of micro enterprises, small and medium enterprises.

The qualitative data calculated by using binary logistic regression (Bierens, 2008). The logistic regression was used to analyze problems which interfere with one or more independent variables that affect the dependent variable of the type dichotomous. Logistic regression aims to find the model in the form of the most appropriate linear mathematical equation that describes relationship between the dependent variable and a set of case independent variables (Mano, 2005). Logistic regression equation was of the form: $\ln(p/(1-p) = B0+B1X1+B2X2+ ...+BnXn$ and showed the probability of occurrence of the event under the influence of all independent variables. One of the most important elements of the multiple model of logistic regression was the odds ratio.

The data processed by statistical software SPSS version 21, which in its structure included treatment through logistic regression of the qualitative data of nominal and ordinal type. In order to proceed accurately and more simply with the elaboration of the data, it was necessary that the variables sent to SPSS statistical software were coded as follows:

- “Risk” – this was the dependent variable that showed that SMEs recognize the risk
- “Debt” – Whether there was debt or not from SMEs
- “DebRat” – Ratio of debt to capital (when SMEs have borrowed and they use it)

- "DebImp" – The impact of debt in the activity of SMEs
- "LegImp" – The impact of change in the tax legislation
- "ForecEcRes" – Forecast of economic results for the entire period of the investment
- "ChanRes" – Change of factual results from those forecasted
- "SitAdj" – Measures taken to adjust situations when negative results are observed

"Risk" variable was the dependent variable taken under study, which was of dichotomous nature, whereas other variables appeared as independent variables of ordinal type measured by the Likert scale of 5 levels.

ANALYSIS

For the successful implementation of this paper, were conducted several interviews through structured questionnaires to 150 SMEs in the region of Gjirokastra. The data generated from the questionnaires were qualitative data, which were processed by the model of binary logistic regression through the statistical software SPSS 21 for the purpose of testing and verification of hypothesis H1. The data were codified in order to be more easily processed in the program (the method of codification is explained in "Methodology").

From the obtained output, as a result of processing the data in SPSS statistical software, is originally generated Table 1, which identifies that in general the model of logistic regression when it includes predictive factors, is 90.2% accurate each time it is used.

Table 1: Classification Table[a]

Observed			Predicted		
			Risk		Percentage Correct
			.00	1.00	
Step 1	Risk	.00	7	157	4.3
		1.00	2	1456	99.9
	Overall Percentage				90.2

a. The cut value is .500

However, information obtained in Table 1 is not final and cannot show the impact of each predictor variable on the dependent variable, or if this model serves to test the raised hypothesis or not. For these reasons, we should take into analysis other outputs of regression model.

Table 2 shows in a summarized way from statistical standpoint, the coefficients R^2 of logistic regression, or otherwise the so-called pseudo-R^2. This mostly happens because logistic regression doesn't have R^2 as it has the regression of the smaller squares (OLS regression). *Cox & Snell* R^2 coefficient tends to approximate the multiple R^2 based on the possibility of the

occurrence, but the disadvantage of this parameter is the fact that it is unable to achieve the maximum value 1. Since *Cox & Snell* R^2= 0.083, it means that the change in the dependent variable is explained through the model of logistic regression to the extent 8.3%. Whereas, the coefficient *Nagelkerke* R^2 is a more reliable measure in the connection between the dependent variable and the independent variables in the logistic regression model, in comparison with *Cox & Snell* R^2 it reaches the maximum value 1 and is considered as R^2 estimated. This coefficient should be always greater than the value of *Cox & Snell R Square*. According to the summary table, *Nagelkerke R Square* = 0.172, which means that the forecast model is affected 17.2% of the independent variables.

Table 2. Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	922.345[a]	.083	.172

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Table 3, shows the variables included in the logistic regression. It is noticed that only the variable "SitAdj" has no statistical importance because its level of significance is high (Sig = 0.069 > 0.05). While other independent variables, "DebRat", "DebImp", "LegImp", "ForecEcRes", "ChanRes" have bigger statistical importance because their significance levels are lower (Sig = 0.000 < 0.05), so they refer to the level 95% of confidence.

Table 3. Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	DebRat	-.870	.115	57.339	1	.000	.419***	.334	.525
	DebImp	.476	.101	22.122	1	.000	1.610***	1.320	1.964
	LegImpl	-.706	.125	31.810	1	.000	.494***	.386	.631
	ForecEcRes	-.692	.160	18.686	1	.000	.501***	.366	.685
	ChanRes	.352	.090	15.167	1	.000	1.422***	1.191	1.698
	SitAdj	.272	.150	3.302	1	.069	1.313	.979	1.761
	Constant	5.321	.961	30.646	1	.000	204.627		

a. Variable(s) entered on step 1: DebtRatio, Debt Impact, Legislation Impact, Forecast of EcResults, Change of Results,Situation Adjustment.

Since the variable "SitAdj" has a significance level (Sig>0.05) higher than the limit, which means that statistically there isn't credibility level lower than 95%, it goes away from the model of logistic regression in order to be included in the model only those variables that have a credibility level over 95% and in the same time a significance level lower than 0.05. For this purpose the Forward Stepwise (Conditional) method is used, which improves the coefficients passing from the first step to the fifth step and introducing them in the logistic regression model the variables with low significance level (Sig<0.05).

Table 4 generated by the use of Forward Stepwise (Conditional) method indicates statistically and summarily the coefficients R^2 logistic regression, or otherwise called pseudo-R^2. This table shows that these parameters improved step by step until the fifth step, which is the final step, the model generates better statistical parameters. As *Cox & Snell R Square* = 0.081 means that the change in the dependent variable is explained by the logistic regression model to the extent of 8.1%.

While the coefficient *Nagelkerke R Square* is a more reliable measure of the dependent variable connection with the independent variables in the logistic regression model, in comparison with Cox & Snell R Square and is considered as R^2 is evaluated. This coefficient should always be greater than the value of *Cox & Snell R Square*. According to the summary table Nagelkerke R Square = 0.168, which means that the forecast model is affected 16.8% from the independent variables.

Table 4: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	998.075[a]	0.039	0.081
2	981.127[a]	0.049	0.102
3	961.409[a]	0.060	0.126
4	941.517[a]	0.072	0.150
5	925.554[a]	0.081	0.168

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Table 5 shows the variables included in the logistic regression with Forward Stepwise (Conditional) method after leaving less important variable "SitAdj" of high level of significance (Sig>0.05), while other variables are of a very good significant level (Sig<0.05).

Table 5. Variables in the Equation

Variables		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 5[e]	DebRat	-0.881	0.115	58.997	1	0.000	0.415	0.331	0.519
	DebImp	0.492	0.101	23.675	1	0.000	1.635	1.341	1.994
	LegImp	-0.717	0.124	33.612	1	0.000	0.488	0.383	0.622
	ForecEcRes	-0.615	0.151	16.490	1	0.000	0.541	0.402	0.728
	ChanRes	0.344	0.088	15.343	1	0.000	1.410	1.187	1.675
	Constant	6.176	0.833	54.928	1	0.000			

e. Variable(s) entered on step 5: ChanRes.

This means that these variables have a significant impact, which is determined by logistic coefficients corresponding to the opportunities that SMEs to predict the chance that they have to protect themselves against risk. These logistic coefficients serve to build logistic regression equation (1):

$$\ln \frac{p}{1-p} = -0.881 DebRat + 0.492 DebImp - 0.717 LegImp - 0.615 ForecEcRes + 0.344 ChanRes + 6.176$$

According to Bierens (2008) is noted that when at least one of the coefficients at the independent variables that participate in the regression equation is different from 0, then the hypothesis being tested is acceptable.

From equation (1) is noted that all coefficients of this equation are different from zero. Also the value of significance level is zero, which indicates that this predicted model is statistically significant within 95% confidence interval. Those mentioned above are summarized in Table 6.

Table 6. Summary of statistical parameters to H1

Coefficients	**Value**	**Sig**	**Statistical importance**	**Testing of H1**
β1 ≠ 0	-0.881	0.000	Sig<0.05	Acceptable
β2 ≠ 0	0.492	0.000	Sig<0.05	Acceptable
β3 ≠ 0	-0.717	0.000	Sig<0.05	Acceptable
β4 ≠ 0	-0.615	0.000	Sig<0.05	Acceptable
β5 ≠ 0	0.344	0.000	Sig<0.05	Acceptable
β6 ≠ 0	6.176	0.000	Sig<0.05	Acceptable

Also in the focus of testing the hypothesis H1 will also be analyzed the link that exists between statistical indicators such as -2Log Likelihood and Chi-square, as well as their level of significance. For this purpose on the statistical program is done a full test of their relationship, which is presented in Table 7 in the fifth step of presenting the best situation resulted predictive of equation (1) logistic regression, since Forward Stepwise (Conditional) method was used to remove less important variable “SitAdj" with high level of significance (Sig> 0.05).

Table 7: Iteration History[a,b,c,d]

Iteration		-2 Log likelihood	Coefficients					
			Constant	P3.3	P3.5	P3.4	P3.11	P3.12
Step 5	1	1055.901	2.789	-.278	-.232	.150	-.187	.095
	2	943.684	4.693	-.598	-.487	.326	-.412	.218
	3	926.340	5.860	-.820	-.665	.454	-.571	.315
	4	925.556	6.159	-.878	-.714	.490	-.613	.342
	5	925.554	6.176	-.881	-.717	.492	-.615	.344
	6	925.554	6.176	-.881	-.717	.492	-.615	.344

a. Method: Forward Stepwise (Conditional)

b. Constant is included in the model.

c. Initial -2 Log Likelihood: 1062.457

d. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Having begun data processing with first value of “-2Log Likelihood” = 1062.457 and completed data processing to obtain independent variables most significant statistically, with last value of “-2Log Likelihood” = 925.554, shows that the value of Chi-sqaure will be equal to the difference between the first and last value of “-2Log Likelihood”, i.e. 106.457 – 925.554 = 136.903, which is evidenced in Table 8. For this value Chi- square results in a significant level (Sig = 0.000), which is compared to the predetermined level α = 0.05, to the aim to be an important model within 95% confidence interval.

Table 8. Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 5	Step	15.963	1	.000
	Block	136.903	5	.000
	Model	136.903	5	.000

Table 9 shows the distribution of Chi-Square by level of coefficient α and the appropriate degree of freedom (df), which in this case belongs to level 5. By comparing the standard value of Chi-Square = 11.070 in table 9 which belongs the level α = 0.05, per df = 5, and the value of the Chi-Square = 136.903 in table 8 that belongs to our regression model(per df = 5), shows that 136.903> 11.070. This means that for value of Chi-sqaure equal to 136.903, the level of significance is smaller than the standard level α = 0.05, so the actual level of significance for regression model is Sig = 0.000.

Hence, the hypothesis ***H1**: **Albanian SMEs which recognize risk are prepared to defend against it***, is acceptable and statistically tested.

Table 9. Chi-Sqaure Distribution

	α level					
Df	0.5	0.10	0.05	0.02	0.01	0.001
1	0.455	2.706	3.841	5.412	6.635	10.827
2	1.386	4.605	5.991	7.824	9.210	13.815
3	2.366	6.251	7.815	9.837	11.345	16.268
4	3.357	7.779	9.488	11.668	13.277	18.465
5	4.351	9.236	11.070	13.388	15.086	20.517

Source: http://math.hws.edu/javamath/ryan/ChiSquare.html

Study of multicollinearity in logistic regression

To study multicollinearity, it is taken into analysis table 10 and is studied statistical parameter "Standard Errors –(S.E)" of each coefficient of logistic regression equation (1). S.E statistical parameter logistic regression model compared with the value eqaul to 2.0, to determine whether the model has multicollinearity problems or not. If this parameter takes a greater value than 2.0, then the model built has multicollinearity problems and can not pretend to be an accurate predictor model. Therefore, to claim that the logistic regression model has no multicollinearity problems must S.E of each variable predictor be less than 2.0.

Table 10. Multicollinearity identification

Independent Variables	Coefficients of regression equation	Standart Errors (S.E)	Signs of comparison	Comparative values	Multicollinearity
DebRat	-.881	0.115	<	2.0	No
DebImp	.492	0.101	<	2.0	No
LegImp	-.717	0.124	<	2.0	No
ForecEcRes	-.615	0.151	<	2.0	No
ChanRes	.344	0.088	<	2.0	No

As it is seen from table 10 shows that there is no multicollinearity problems, because all the standard errors of each coefficient of logistic regression equation (1) are smaller than the value 2.0. This means that in this regression model has not numerical problems which would make incredible logistic regression model.

CONCLUSIONS

In summary, this paper showed that the Albanian SMEs, which recognize the risk, are prepared to defend from it. From logistic regression equation (1) was possibly done the verification and testing of the raised hypothesis. By carefully analyzing the independent variables included in logistic regression equation (1), regression coefficients and their odds ratios (Exp(B)) shows that;

- SMEs that have used debt should be cautious in its use, since increased debt level reduces the possibility of protection from risk. This results from a negative coefficient of logistic regression equation (1) eqaul to (-0.881) and values smaller than 1 to its odds ratio (Exp (B) = 0.415).
- Also SMEs have been cautious when using debt taking positive results from its use, which are reflected in the increased activity and business profits. It turns out positive coefficient of logistic regression equation (1) equal to 0.492 and values greater than 1 to its odds ratio (Exp (B) = 1.635).
- Frequent changes to fiscal legislation reduces the possibility of protection from risk, therefore SMEs should be very careful and vigilant to changes in legislation. This results from a negative coefficient of logistic regression equation (1) eqaul to (-0.717) and values smaller than 1 to its odds ratio (Exp (B) = 0.488).
- SMEs that are not able to perform predictions of economic outcomes for future investments have lower opportunity to protect against risks to which they may face. This results from a negative coefficient of logistic regression equation (1) eqaul to (-0.615) and smaller values than 1 to its odds ratio (Exp (B) = 05.41).
- SMEs that pay attention to investment forecast to pursue in the future and to perform accurately and responsibly this prediction are sufficiently protected from risk. It turns out positive coefficient of logistic regression equation (1) eqaul to 0.344 and values greater than 1 to its odds ratio (Exp (B) = 1.410).

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