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#### Recommended Citation

Lani, Lirim and Daci, Enver, "Use of the Monte Carlo Model in the Corporate Tax Strategy in Kosovo" (2020). *UBT International Conference*. 462.

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# Use of the Monte Carlo model in the corporate tax strategy in Kosovo

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**Abstract.** The paper is oriented towards the use of the mathematical-statistical model, in order for the result of this model to show the right way of tax strategy used by corporations in Kosovo. The main purpose of the research is to select a certain sample of financial items from the financial statements to use the Monte Carlo model, with the main purpose of real research of the tax strategy used by corporations in Kosovo. Avoiding corporate taxes has been a significant public concern, especially since the 2008 global financial crisis. The Monte Carlo model has a 5-10% forecast deviation, which has enabled the company to make earlier securities risk forecasts so that the planning for the fiscal year is accurate.

**Keywords:** Tax Strategy, Kosovo, Monte Carlo

## Indroduction

Corporate tax avoidance has been a significant public concern, especially since the global financial crisis of 2008. The nature of calls for tax reform and increased regulation, largely protected by tax activists and NGOs, is revolving around transparency as a possible remedy for unacceptable tax evasion, although there is no consensus on what the term tax evasion includes and when it becomes unacceptable. We have a significant misunderstanding about the benefits of transparency in this environment. By not considering the limits of transparency initiatives there is a risk of dysfunctional consequences, for example additional costs in providing and processing additional information, the prospect of growing disputes as new information generates misinterpretations and uncertainty in determining the final tax position. There is a risk that the larger disclosure will not effectively address concerns about unacceptable corporate tax evasion [1].

This paper explores the relationship between unacceptable corporate tax evasion and tax transparency. We consider these two issues in turn, observing the conceptual and determinative difficulties associated with the former, and the complexity and limitations of the latter. To illustrate our arguments, we consider two recent developments in tax return requirements: country reporting by a country and the publication of tax strategies. Reflecting on the potential impact of these new requirements, we conclude that the costs and benefits of tax transparency are not well understood, and the potential non-functional consequences of greater transparency

should be carefully considered before changing policies for it. demanding even more transparency. The demand for more transparency often focuses on the demand for more information, but this is problematic because information does not automatically translate into understanding or results in behavioral change. In this particular context, an added complication is the multiple meanings by different people of what is meant by the term tax evasion. To consider whether transparency can be a remedy for unacceptable tax evasion, we must first clarify what is meant by the term tax evasion. Tax liabilities are defined by reference to tax law: the content and effect of which vary from state to state. The design of tax rules that apply to companies is a matter of national sovereignty, although limited in some cases by national laws, as in the case of European Union (EU) member states. Like most legislation, tax laws are undefined [2].

### **1.1. Research hypotheses**

The research hypotheses of the research are:

**H1** - The percentage of return on investment in corporate futures of Kosovo, according to the Monte Carlo Model forecast is statistically significant with the average risk of future financial instruments of the Milan Stock Exchange.

**H2** - The Monte Carlo model has a positive impact on the selection of corporate tax strategy in Kosovo.

### **Literature review**

In its simplest and broadest way, tax evasion to choose an option leads to a lower tax liability than would otherwise apply if another option were chosen. In recent years, however, tax evasion has become a complex term, meaning different things for different parties. However, most agree that tax avoidance is conceptually distinct from tax evasion, despite the fact that they are often chosen in contemporary discourse. The difference has two aspects, first the relationship with the legislation and the second temporary [4]. In relation to the first of these, tax evasion is a violation of the law and may involve intentional non-disclosure that may or may not be fraudulent. Tax avoidance in its broadest sense includes - all arrangements to reduce, eliminate or defer a tax liability. Payne and Ralborn state that tax evasion is illegal and also unethical because it leads to fraud and concealment. They 'tax avoidance' in rational business planning on the one hand, and avoidance that benefits from a legal 'gap', the latter is considered morally controversial. Many domestic tax laws seek to prevent tax evasion by looking at the purpose of the legislation and the subjective intentions of taxpayers, but both of these concepts are also elusive (see Piantavigna 2018 in the context of the EU Tax Avoidance Directive taxes) [8]. Regarding the second aspect of the difference between evasion and evasion, that of temporary, tax evasion is an ex-post activity, i.e. that occurs after the crystallization of a tax liability. However, tax evasion is the previous activity, which occurs before the crystallization of the tax liability; in the evaluation and implementation phase. Running these two aspects together results in a mix of completely different behaviors and leads to confusion. Over the past ten years, we have witnessed an exponential increase in public attention given to "tax evasion" in relation to the tax issues of large multinational entities (MNEs). Increased awareness

of tax evasion in the context of MNE activities has been driven by media attention, NGOs. "Now, MNEs are expected to behave in a certain way not only by the tax authorities, but also by civil society." [10] Morrell and Tuck describe the emergence of new stories in the UK in the 2000s using the metaphor of folk tales to help understand the dynamics between different groups of actors, throwing them as characters, as heroes, villains and helpers, within a tale of functions that perform functions that provide conceptual tools to understand the developments of the 'tax tale'. However, care must be taken in assessing the validity of increasing public attention, especially as a result of media coverage of alleged misuse of specific MNEs. A number of studies have shown that there is a lack of consistency and there is a risk that appeals to 'public anger' may in fact refer to indignation produced on the basis of intentional misinformation. Despite increased attention to tax evasion, little progress has been made in defining the term tax evasion, and efforts to do so are apparently largely in vain. In a report produced by the Oxford Business Taxation Center for the National Audit Office, two three categories of legal tax evasion are distinguished: (1) ineffective tax evasion, which can be challenged by existing legislation, (2) effective tax evasion which cannot be corrected by the courts and requires legislative change and (3) the use of tax legislation to one's advantage, for example leverage to reduce the taxes provided for in tax legislation, commonly referred to as tax relief or tax concessions [11].

### **Econometric Model**

A multinational company will be the case study in this research utilizing the data of its financial statements. In this paper will be used advanced scientific and research methods accompanied by publications from professional institutions while the comparative approach of statistical data, describing notions and definitions will be part of the work to achieve the objectives of the paper. Other sources of data, international and domestic literature were also used but the latter was less, and the financial statements published by the company using this data collected for analysis, comparison and conclusions. The results obtained from the data will be reflected through qualitative and quantitative evaluation by presenting the data in tabular form and graphical representations of the achieved results, so the numerical and quantitative values will be the result of comparing accounting information for a certain period of time. within the company.

The hierarchical regressive econometric model will be based on this econometric formula [5]:

$$\gamma = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \epsilon \dots \dots \dots (1)$$

Dependent variable

$\gamma$ - Return price, calculated for the return on investment value in relation to the total investment value

Independent variables

X1 - Inflation risk,

X2 - Budget deficit risk,

X3 - Risk of economic growth,

## Analysis and discussion

The Monte Carlo model consists of the probability of the event, which is replaced by ordinary numbers (from 0 to 1), the average of the stock index and the daily standard deviation.

Investing	76,893.92 €
FTSE index	0.0314%
Standard daily deviation	0.67%

**Table 1. Data of the derivative financial instrument**

Corporations in Kosovo plan to have an investment in the future, to expand the production of parts, where there are several derivative financial instruments, one of which we will address is FTSE MIB futures, with a public offer of 83 days, which has not the right of repurchase. The data presented above show the value of the investment, where the company expects to receive a higher interest rate.

Days	Rate of return (%)
Monday	-0.12250%
Tuesday	0.67351%
Wednesday	0.71229%
Thursday	0.71493%
Friday	0.71109%

**Table 2. Monte Carlos first week forecast**

T-test is a statistical test to measure the mean between two samples, to find the level of significance.

**Table 4. T-test**

One-Sample Test						
	Test Value = 13.89					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Vera_e_kthimit	-9147317.953	82	.014**	13.889944148	-13.889947169	-13.889941127

The One-Sample Test compares a sample with the branch average of that sample, which responds to our hypothesis testing requirement (H1). The table above shows that the significance level  $\alpha = 0.14$  or 1.4%, indicator that we approve the hypothesis (H1), that has the significance or impact the percentage calculated by the Monte Carlo model with the average of the stock, for derivative financial instruments, indicator that the Monte model forecast Carlo is index with the average of other derivative financial instruments. Multivariate regression is used in 3 systems with a dependent variable, where the independent variables are constructed according to standard (theoretical), hierarchical and logistic multivariate regression. We have used the second model, where the independent variables are first tested separately from the other independent variables, in order to better identify which of the independent variables affects the dependent variable.

The results in SPSS have these steps of the results of multivariate hierarchical regression.

Correlations					
		Cmimi_j_kthimit	Inflacioni	Deficiti_Buxheto	Rritja_ekonomik
		r			
Pearson Correlation	Cmimi_j_kthimit	1.000	-.529	.468	.066
	Inflacioni	-.529	1.000	-.980	-.321
	Deficiti_Buxheto	.468	-.980	1.000	.482
	Rritja_ekonomike	.066	-.321	.482	1.000
Sig. (1-tailed)	Cmimi_j_kthimit	.	.004	.011	.380
	Inflacioni	.004	.	.000	.063
	Deficiti_Buxheto	.011	.000	.	.009
	Rritja_ekonomike	.380	.063	.009	.

**Table 5. Correlation**

The price of return on investment has an inverse correlation with inflation, with an average inverse relationship of -529, which indicates that with the increase of the price of return the risk of inflation will be lower and vice versa, which confirms the "Fisher effect" that with the increase of inflation the interest rate decreases and vice versa, while

with the risk of budget deficit and economic growth there is a positive correlation, which shows that with the increase of the price of return on investment in stock exchanges there will be increase of budget deficit and economic growth, which supports the theory of borrowed funds.

Model Summary<sup>a</sup>

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	.529 <sup>a</sup>	.280	.247	.001261727	.280	8.542	1	22	.008	
2	.585 <sup>b</sup>	.343	.280	.001233651	.063	2.013	1	21	.171	
3	.588 <sup>c</sup>	.346	.248	.001260811	.003	.105	1	20	.749	1.962

- a. Predictors: (Constant), Inflacioni  
 b. Predictors: (Constant), Inflacioni, Deficiti\_Buxhetor  
 c. Predictors: (Constant), Inflacioni, Deficiti\_Buxhetor, Ritja\_ekonomike  
 d. Dependent Variable: Cmimi\_j\_kthimit

**Table 6. Summary of the economic model**

The model summary is constructed to look at the coefficient of determination (R<sup>2</sup>). In our case model 1, or inflation describes only the price of return on investment by 28%, while model 2, where inflation is accompanied by a budget deficit we have an increase of determination to 34.3% and model 3 with all independent variables describes 34.6 % dependent variable. From the models we see that inflation describes more the dependent variable, so inflation is an important indicator in determining the price of return. The Durbin-Watson coefficient shows the value 1.962, so the random error is normal, because it is between 1.5 - 2.5.

Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error				Beta	Zero-order	Partial
1	(Constant)	.006	.000		21.912	.000			
	Inflacioni	-.003	.001	-.529	-2.923	.008*	-.529	-.529	-.529
2	(Constant)	.009	.002		3.938	.001			
	Inflacioni	-.011	.005	-1.752	-1.991	.060**	-.529	-.398	-.352
3	Deficiti_Buxhetor	-.042	.030	-1.248	-1.419	.171	.468	-.296	-.251
	(Constant)	.009	.002		3.862	.001			
3	Inflacioni	-.008	.011	-1.263	-.720	.080**	-.529	-.159	-.130
	Deficiti_Buxhetor	-.024	.064	-.707	-.373	.713	.468	-.083	-.067
	Ritja_ekonomike	-.005	.016	-.131	-.324	.749	-.066	-.072	-.059

- a. Dependent Variable: Cmimi\_j\_kthimit

**Table 7. Regression coefficient**

## Conclusion

Corporate tax avoidance has been a significant public concern, especially since the global financial crisis of 2008. The nature of calls for tax reform and increased regulation, largely protected by tax activists and NGOs, is revolving around

transparency as a possible remedy for unacceptable tax evasion, although there is no consensus on what the term tax evasion includes and when it becomes unacceptable. We have a significant misunderstanding about the benefits of transparency in this environment. By not considering the limits of transparency initiatives there is a risk of dysfunctional consequences, for example additional costs in providing and processing additional information, the prospect of growing disputes as new information generates misinterpretations and uncertainty in determining the final tax position. There is a risk that the larger disclosure will not effectively address concerns about unacceptable corporate tax evasion.

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