Analysis and forecast of the economic indicators of S.C DEDEMAN.SRL

Mihai FÂNARU[1]

Abstract: *The increasing pace of change characteristic to the contemporary era requires anticipating them on larger period of time. Researching the future becomes a constant concern of both individuals and professionals as well as some national and international bodies and institutions. As John Naisbitt states, "a man can survive only by its ability to act in the present, based on past experience, with consequences in the future. Assuming ones future, the man makes his present bearable and its past significant. Past, present and future alternatives are intertwined in anticipation and forecasting of future actions. "The bricolage market is estimated at a value of 2 billion euro, being currently dominated by Romanian players like Dedeman, Arabesque and Ambient. The approximate knowledge of the future is a way through which the bricolage company Dedeman is preparing to face the unexpected..*

Key-words: *prediction, bricolage market, change, future action*

1. Introduction

The modern democratic society cannot function effectively without a solid and rigorous, relevant and reliable statistical data system, which can be easily and comfortably available. Representing a "public good" in the contemporary society, the official statistical information is meant to serve the entire society, in conditions of maximum transparency, fairness and equality for all target knowledge groups.

A prerequisite of building, operating and developing a modern society based on knowledge, is the high degree of information of the community regarding the economic, social, demographic and environmental situation.

In this respect, humanity, attracted by ever faster pace of life, must intensify its existing forecasting capabilities, and in some cases to find new capabilities.

The major role of forecasting is to reduce the decisional risk. At governmental or intergovernmental level, the decision-making process primarily involves adopting long-term policies that translate into economic and legislative measures likely to encourage or discourage certain activities, create the appropriate environment for business and international relations between countries.

---

[1] Transilvania University of Braşov, mihai.cosmin.fanaru@unitbv.ro

In order or the results to be the expected ones, all these decisions are based on the forecast of specific indicators for the targeted domain.Dedeman is the name of one of the major national store chain and warehouse of building materials and interior design, as well as the most important furniture factory.

According to the financial analyzes of 2015, Dedeman, the largest retailer in Romania in terms of turnover is also one of the top 5 retailers in Central and Eastern Europe. Dedeman opened in Bucharest in April its 41st store, the first one of 2015.

In 2014, the business of Dedeman first exceeded the 3.5 billion lei (762 million euro) threshold, a strong 20% growth compared to 2013. This way, Dedeman consolidated its position as market leader, setting a new market record in terms of sales. At the same time, the company managed to substantially increase its profit, to almost 93 million euro, which means the profitability has improved slightly over 10%. The profit was reinvested in expanding the store inventories and current activity.
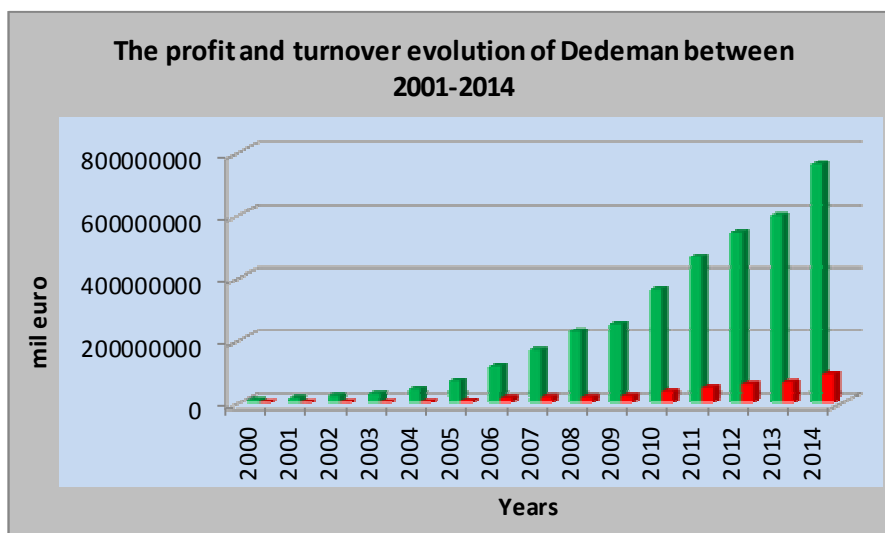

Figure 1. The profit and turnover evolution of Dedeman

2. **Multifactorial regression model (multiple regression)**

This model aims to present the influence of current assets, number of employees, GDP / capita (GDP / capita), the unemployment rate, the inflation rate upon the profit registered by Dedeman in Romania between 2000 and 2014, using the multiple linear regression model. As shown in the table below, an econometric multifactorial model can be built as a function:

$Y=\beta_0+\beta_1*X_1+\beta_2*X_2+\beta_3*X_3+\beta_4*X_4+\beta_5*X_5$

Y = profit, X_1= current assets, X_2 = number of employees, X_3= GDP, X_4= unemployment rate, X_5 = inflation rate;

Year	Profit Dedeman	Current assets	Dedeman employees (nr. mediu)	GDP / capita	Unemployment rate	Inflation rate
	Y	X_1	X_2	X_3	X_4	X_5
2001	1215448	2981350	123	3609.7	8.8	2.3
2002	2314081	4323267	150	5263.5	8.4	1.4
2003	2155943	4983215	361	6974.9	7.4	1.1
2004	2862812	9984917	464	9084.0	6.3	0.9
2005	7064734	16180285	667	11413.5	5.9	0.8
2006	15463932	31584235	965	13362.8	5.2	0.7
2007	18256051	49338668	1476	15967.6	4.0	0.3
2008	17499781	53793008	2233	19315.4	4.4	0.5
2009	21508942	59690998	2971	23934.6	7.8	0.6
2010	35750036	86446541	3752	23341.4	7	0.8
2011	47612329	131399911	4646	24435.9	5.2	0.4
2012	58429613	133502939	5711	24945.2	5.4	0.4
2013	64300818	140365824	6489	25202.7	5.7	0.3
2014	92768605	180040569	7179	25852.2	5.4	0.1

Table 1.The economic indicators

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.989009
R Square	0.978139
Adjusted R	0.974164
Standard Er	4546619
Observatio	14

ANOVA

	df	SS	MS	F	Significance F
Regression	2	1.01741E+16	5.08705E+15	246.0871224	7.38259E-10
Residual	11	2.27389E+14	2.06717E+13		
Total	13	1.04015E+16			

	Coefficient	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	4553471	3495183.216	1.302784561	0.019261485	3139375.659	24712246317	-3139375.659	12246317
X Variable 1	0.563916	0.047395004	11.8982063	1.26968E-07	0.459599836	0.668231238	0.459599836	0.668231
X Variable 2	-802.19	344.3504604	-2.329574205	0.039899006	-1560.100203	-44.27969675	-1560.100203	-44.2797

Table 2. Regression table

The Regression method was used in order to interpret the data. In table 1.1 is analyzed first of all the multiple relation coefficient (Multiple R), where 0.98 represents a good correlation, which indicates a strong direct link between income, current assets and GDP / capita. The coefficient of determination (R Square) shows the validity of the model, to what extent the model explains the variation of y; $R^2 = 0.97$ is a value close to 1, indicating that the model is well chosen, current assets and GDP / capita (X_1, X_3) explain the variation of the profit of the Dedeman company in proportion of 97%. The Fisher test reveals if overall regression is significant and represents the ratio between the two distributions with the degrees of freedom. The Significance F value represents the signification limit α from which the value of the F test becomes significant and the value $7,38*10^{-7}$ is small, meaning α = 0, and 1-α = 1 which indicates a likelihood of 100% that the regression is globally significant.

The P-value is the probability of occurrence of an observed error which must be less than 0.05. Using the regression, one by one, the independent variables with a P value greater than 0.05 are removed from the model. As shown in the regression table it can be observed that the dependent variable, in this case the profit is significantly influenced by the two independent variables which are current assets and GDP / capita. The new model has now the form $Y = \beta_1 * X_1 + \beta_3 * X_3 + \varepsilon$.
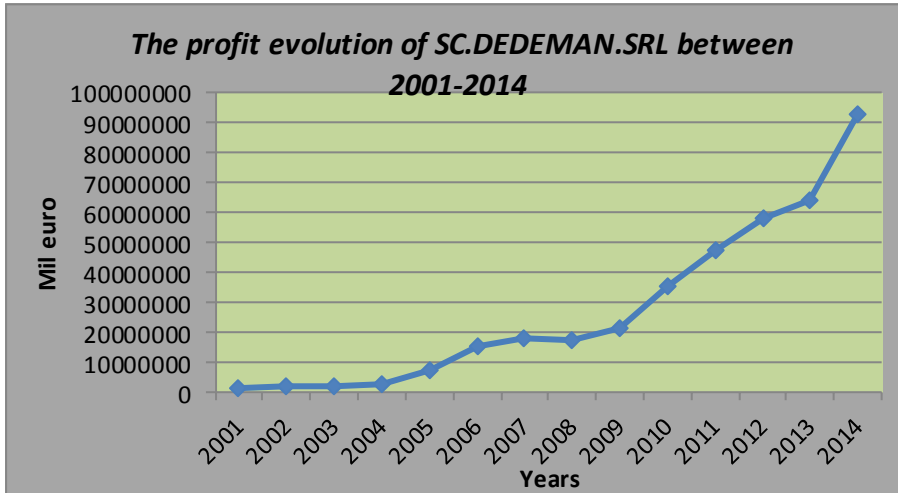
Figure 2. The profit evolution of SC.DEDEMAN.SRL between 2001-2014

Further it's presented the graphic of Dedeman's profit evolution during 2001-2014. As can be seen in the chart above Dedeman company's profit has grown steadily since 2001 until 2014, after that from 2007 until 2008 a slight decrease can be observed, this is due to the financial crisis. Starting from 2009 until 2014 follows a period of profit growth.
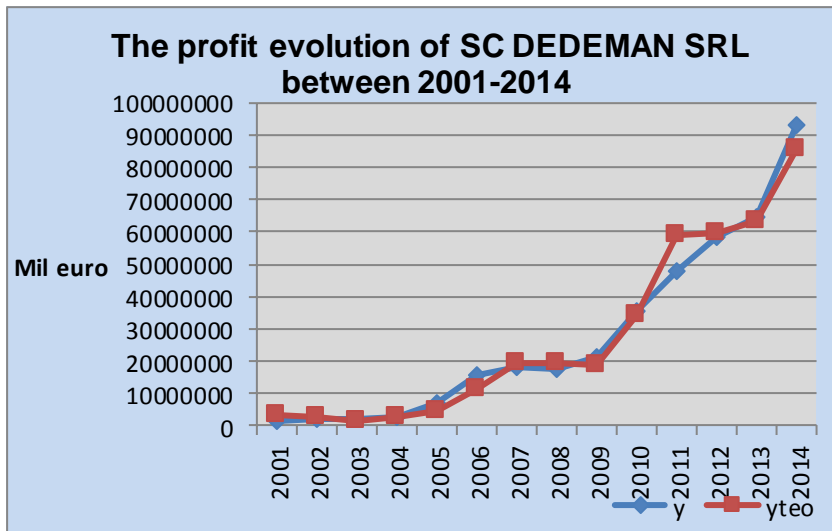

Figure 3. The econometric model that adjusts the data series the best

From the graph above we can identify the best model which best adjusts the data series that is obtained through regression with the lowest amount of error possible.
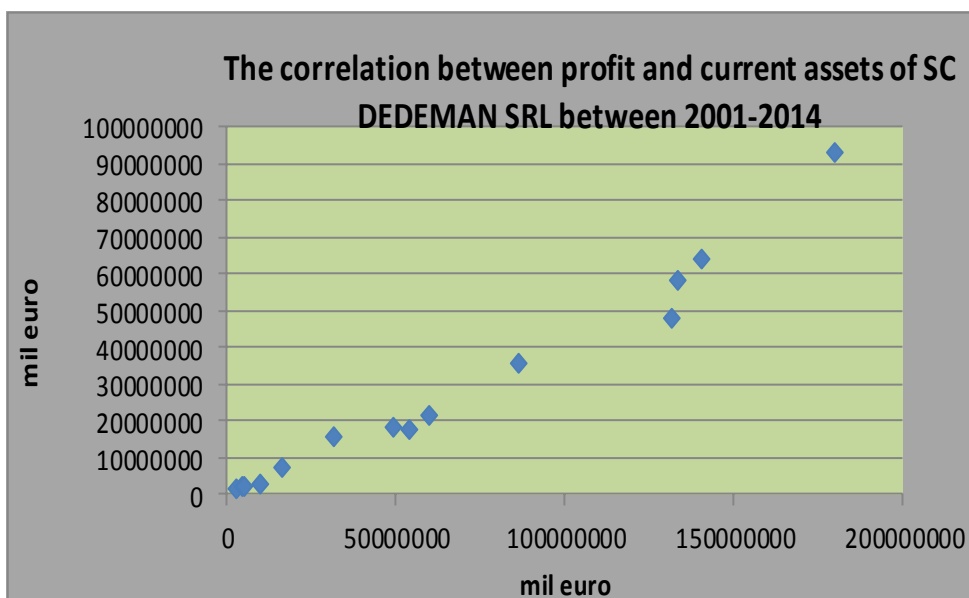

Figure 4. The correlation between profit and current assets of Dedeman

As can be seen from in chart above there is a strong and direct link between the company profits and current assets of Dedeman. Furthermore, in order to perform the forecast it is necessary to know the values that the independent variables x1 and x3 will take within the time frame covering years 2015-2010.

Since seasonal factors are likely to influence the analyzed data, it is necessary to identify whether in this model there are such factors that can influence the results. To determine the influence of these events, binary factors are inserted into the model. These factors can take the value of 1 if the phenomenon occurs and the value of 0 if the phenomenon does not occur.

Once the future values of the explanatory variables are known, according to them the punctual forecasts can be made. With a certain probability the confidence intervals of these future values are estimated.
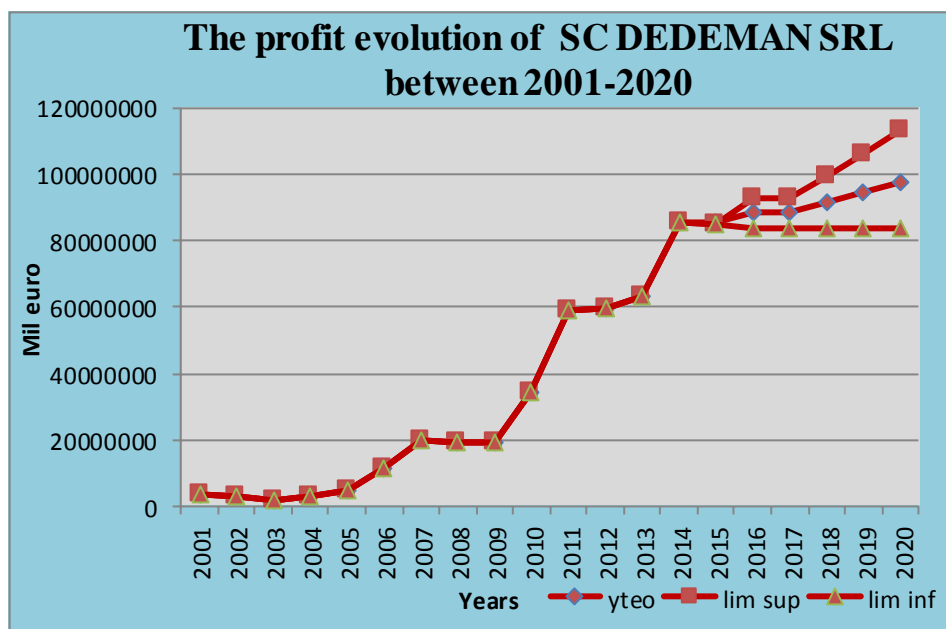
Figure 7. The profit evolution of Dedeman between 2001 and 2020

In the chart above there is a forecasted the evolution of the company profit during 2015-2020. It can be noticed that the trend depicts a steady increase over a 5 years period. Each of these figures is, however, a punctual forecast, or to be more précis it is the center of the forecast range.

4. Conclusions

In a liberalized economy, forecasting is an important means to estimate the likely evolution and based on this can be created a series of economic and social strategies which contain practical solutions to be translated into actions by the economic agents. In this economy, forecasting has particularly important role. Forecasts are developed for each consumer in order to know and be able to use all techniques of production and sales at any given moment. Forecasts supply real information regarding the development of the offer, the size and structure of domestic and external demand.

The universe of the situations in which marketing predictions are done in the economic field is very complex and is in a continuous movement. The circumstances in which the forecasts are done vary widely, being determined by the context of the forecasts, the projected time frame, the availability and the

characteristics of the history data, influencing factors being considered, the level of formalization used, the degree of accuracy, the desired time interval in which predictions must be made, as well as the value and usefulness of this activity for the marketing management.

In perspective, it is expected an increase in the Dedeman Company profits both on medium and long term, driven by a decrease in cost due to investments, which will enable the company to align to the market price and the diversification of its product range in order to target other market segments as well.

5. References

Duguleană, L. and Duguleană, C., 1998. *Economie aplicată*. Braşov: Ed. Universităţii Transilvania din Braşov, p. 57.

Duguleană, L., 2011. *Metode de previziune economică*. Braşov: Ed Universităţii Transilvania din Braşov, p.120.

Duguleană, L., 2013. *Statistică in cercetare*. Curs pentru doctoranzi, anul 1, Şcoala doctorală, online, p. 34.

Duguleană, L., 2006. Some Aspects of Measuring the Socio-Economic Changes in the New Economy. *Bulletin of the Transilvania University of Braşov*, Vol.13(48), Series V, No.11, pp.391-395.   [online] Available at: <http://but.unitbv.ro/BU2008/Arhiva/BU2005/BULETIN%20B%20PDF/060-B-Duguleana_05.pdf> [Accessed 05 April 2016].

Petcu, N., 2010. *Tehnici de data mining rezolvate în SPSS Clementine*. Cluj Napoca: Ed. Albastră, p. 56.

Voineagu, V., and Mitruţ, C., 2000. *Statistică pentru managementul afacerilor*. Ediţia a II-a. Bucureşti: Ed Economică, pp. 64-68.

http://www.mfinante.ro [Accessed 03 April 2016]

http://www.insse.ro/cms/files/Tutorial_Tempo_Online/Tutorial_Tempo2.htm [Accessed 03 April 2016]

http://ec.europa.eu/eurostat/data/database [Accessed 28 March 2016]