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# TURNOVER'S IMPACT ON PROFITABILITY IN THE COMERCIAL COMPANIES DEALING WITH DAIRY FARMING

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***Abstract***

*The paper analyzed turnover indicators in terms of working capital (WCT), total assets (TAT) and fixed assets (FAT) on the profitableness in term of return on assets (ROA) and equity (ROE) of six companies, codified F1-F6, dealing with dairy farming in the surroundings of Bucharest, the capital of Romania in the period 2009-2018. Descriptive statistics, correlation and determination coefficients, as well as polynomial regression models were used to process the data in order to prove in what measure the increase of turnover could have a beneficial effect on effectiveness of the business. Despite that the firms are in the top for their financial results, it was noticed a large variation regarding the dynamics of sales and profit, but the general trend was an increasing one. Based on the indicators taken into account, the resulting hierarchy of the companies was F5, F2, F1, F3, F4 and F6. A weak relationship was found between WCT, TAT and FAT and ROA and ROE, with a few exceptions as follows: in F4, r =0.540 between WCT and ROA, r=0.703 between TAT and ROA, r = 0.806 between FAT and ROA and r=0.565 between WCT and ROE, in F5, r=0.565between WCT and ROE, and in F6 r = 0.601 between TAT and ROA and r = 0.525 between FAT and ROA. Another conclusion was that in F4, the variation of WCT and TAT could influence the variation of ROA, and the variation of FAT could influence the variation of ROE in a higher measure. The polynomial regression models showed that in F4, one more unit of TAT could determine an increased ROA by 0.2609, and one more unit of FAT could led to a higher ROA by 0.333 and of ROE by 0.970. In F5, one more unit of WCT could grow ROE by 3.895, and one more unit TAT will determine a higher ROE by 0.282. As a final conclusion, in financial management of the dairy companies turnover must be carefully managed in order to get a higher effectiveness and profitability of the business.*

***Key words*****:** *turnover, profitability, dairy farms, Romania*

## INTRODUCTION

Financial management implies a large variety of principles, methods, techniques, tools which are used for running the financial operations of a firm in order to increase its profitability, its financial autonomy and raise its economic power and competitiveness in the market.

Financial analysis aims to assess the firm performance at the end of a financial year emphasizing the strengths and weaknesses of the financial management.

The financial decisions could have either a positive impact on the profitability of a company or a negative effect leading to bankruptcy [6, 7, 8, 9, 10, 20].

Dairy farming is one of the most important and also difficult sector of agriculture as milk chain is facing with high problems related to production costs closely linked to the higher and higher price for farm inputs, milk quality, collection and a low milk price at the farm gate [1, 18, 25, 26, 37, 38].

Milk market in Romania is passing through a critical situation as the dairy cattle livestock is decreasing, milk yield per cow has a low level compared to the EU average and records in the top milk producing countries, milk production is going down, which affects consumption which has to be covered by imports [ 31, 32, 33, 34, 36, 37].

Financial analysis in dairy farming pointed out how important is to increase income, to manage the working capital and fixed assets, to keep production costs under a permanent control and mainly the operational expenses, to assure the a balanced ratio among the

capital and debts, between receivables and cash flow, to assure a higher turnover and profit, a high return on fixed assets and equity [11, 12, 13,14, 19, 21, 22, 23].

To increase incomes coming from dairy farming supposes to improve investments in modern technologies, milk yield per dairy cow, milk quality, to deliver more milk in the market and get a good price at the farm gate to cover production costs and assure profit [15, 17, 24, 28, 29, 34, 35]. There are many differences from a farm to another regarding production and financial management with a deep impact on profitableness of the business in dairy farming [27, 30]. The capital, the largest municipality in the county absorbs a large amount of milk from the companies operating in the surrounding counties [16]. For this reason, the purpose of this paper was to analyze turnover and evaluate its impact on the sales return on assets and equity, in a word on the profitability of the companies dealing with dairy farming in the proximity of Bucharest, taking into account firms which are on the top among the dairy cattle growing and milk producers. This topic of high interest in financial management, as the firm managers have to be aware in what measure to increase turnover is an objective which deserves to be included among the development strategy of the business in dairy farming [2, 4, 39, 40].

The objectives of the paper were:

(i)to analyze the evolution of turnover and profit, and also of the independent variables: WCT, TAT and FAT, and also of the dependent variables: ROA and ROE,

(ii) to quantify the relationship between various pairs of these indicators by means of the correlation coefficients,

(iii) to estimate the variation of the dependent variables cased by the variation of the independent variable by means of the determination coefficients,

(iv)to set up the regression models using polynomial equations for each pair of indicators in order to assess the effect of the turnover independent variables on the effectiveness of the business in terms of return on assets and shareholders' equity.

## MATERIALS AND METHODS

### Data collection

The research is based on the data collected from the Balance Sheets of six commercial societies dealing with dairy farming in the surroundings of Bucharest, the capital of Romania [3]. The firm seats are in Bucharest, and Ilfov, Girugiu, Calarasi, and Prahova Counties. The companies are codified in this study as F1, F2, F3, F4, F5 and F6.

The data refer to the period 2009-2018.

The following indicators were studied: (i)Turnover (T), (ii)Net Profit (NP), (iii)Working capital turnover (WCT), Total Assets Turnover (TAT), Fixed Assets Turnover (FAT), Return on Assets (ROA), and Return of Equity (ROE).

The independent variables were considered to be: T, NP, WCT, TAT and FAT, and the dependent variables were ROA and ROE.

### Methodological aspects used in this study

***Dynamics analysis*** was studied using the Fixed basis Index, $I_{FB(\%)}$, according to the formula: $I_{FB(\%)} = (Z_n/Z_1)100$, where: $Z_n$ is the value of the variable in the year n and $Z_1$, the value of the variable in the year 1.

***Descriptive statistics*** was determined for Turnover and Net Profit, in terms of Mean, Standard deviation, Coefficient of variation, Minimum and Maximum values, and for WCT, TAT and FAT was determined only the average, as basis for establishing the firms classification. The independent variables were calculated using the following formulas:

***Working capital turnover (WCT):*** WCT=T/WC, where: T= turnover and WC is Working capital.

***Total Assets Turnover (TAT):***TAT = T/TA, where: TA = Total Assets.

***Fixed Assets Turnover (FAT):*** FAT = T/FA, where: FA= Fixed Assets.

The dependent variables were determined using the formulas:

***Return on Assets (ROA***): ROA= NP/TA, where: NP= Net profit, and TA= Total Assets.

***Return on Equity (ROE):*** ROE = NP/E, where: NP= Net profit, and E= Average Shareholders' Equity.

***Trend line of the pairs of variables*** was based on the polynomial regression equation, having the formula: $Y = a + bx + cx^2$, established by means of the Excel facilities. In the formula, Y represent the dependent variable and X is the independent variable. There were established the regression equations for pairs of indicators: between ROA, depending on WCT, TAT and FAT, and for ROE, also depending on WCT, TAT and FAT.

***The correlation coefficient, r,*** was also calculated for the pairs of variables mentioned above. The interpretation of the values of the correlations coefficients was made in accordance with [5].

***The determination coefficient, $R^2$***, was also used in order to quantify how much of the variation of the dependent variable is caused by the variation of the independent value. For testing the significance of the coefficient of correlation it was applied ***t Test (Student), Two-Tails*** for the significance threshold $\alpha = 0.05$. The interpretation of the r significance was made as follows: (i) If $t_{calc} > t_{tab}$ (critical value), then $H_o$ (null hypothesis) is rejected in favor of the alternative hypothesis, $H_1$; (ii) If $t_{calc} < t_{tab,}$ then $H_o$ is accepted and $H_1$ is rejected. The values of $t_{tab}$ for $\alpha = 0.05$ and the degrees of freedom, df= N-2, that is 10-2= 8, is 2.306.

***Comparison method*** was utilized to enable the author to comparatively examine the correlation coefficients and the regression models and to draw the conclusions in what measure the independent indicators of the turnover have influenced the effectiveness of assets and equity among the firms dealing with dairy farming. The results were partially graphically illustrated and mainly tabled. At the end of the paper, there were drawn the corresponding conclusions and also a few recommendations.

## RESULTS AND DISCUSSIONS

### Turnover dynamics

Turnover varied from a farm to another and from a year to another in the analyzed period. However, the data showed a general increasing trend since 2009 to 2018. In case of F1, the turnover increased 2.91 times from Lei 2.80 Million in 2009 to Lei 8.17 Million in 2018. In case of F2, the turnover increased 1.86 times from Lei 4.36 Million to Lei 8.11 Million. In case of F3, the turnover increased 3.76 times from Lei 4.03 Million to Lei 15.18 Million. In case of F4, the growth of turnover was 1.82 times from Lei 5.52 Million to Lei 10.05 Million. In case of F5, the turnover increased 1.97 times from Lei 1.11 Million to Lei 2.19 Million and in case of F6, the level of turnover raised 2.22
times from Lei 4.29 Million to Lei 9.52 Million (Fig. 1).

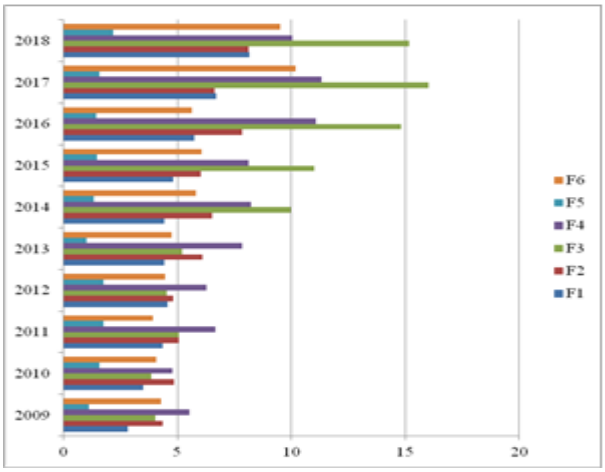


Fig. 1. Dynamics of Turnover of the analyzed dairy farms, 2009-2018 ( Lei Million)
Source: Own design based on the Balance Sheets of the farms [3].

### Net Profit dynamics

Net profit also varied among farms and from a year to another, but in general had an ascending trend with a few exceptions.

In case of F1, the net profit increased 8.25 times from Lei 0.12 Million in 2009 to Lei 0.99 Million in 2018. In case of F2, the net profit raised 1.5 times from Lei 0.4 Million to Lei 0.6 Million. F3 registered net profit in the years 2009, 2011, 2014-2017, while in the other years 2010, 2012-2013 and 2018 it recorded losses. In case of F4, the net profit increased 2.7 times from Lei 0.4 Million to Lei 1.08 Million. In case of F5, the net profit increased 1.66 times from Lei 0.39 Million to Lei 0.65 Million, with only one exception in 2016 when it registered losses. In case of F6, the net profit raised 1.89 times from Lei 0.56 Million to Lei 1.06 Million (Fig.2).

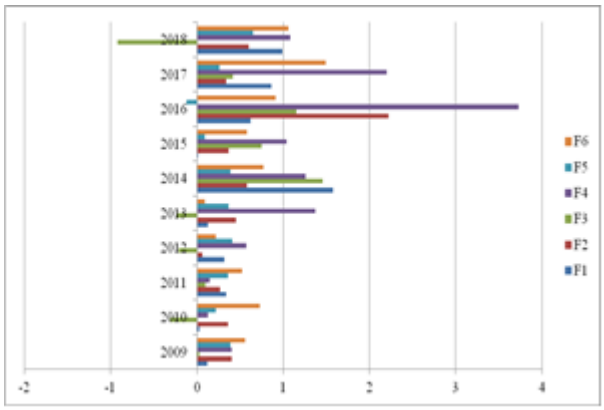


Fig. 2. Dynamics of Net Profit of the analyzed dairy farms, 2009-2018 ( Lei Million)
Source: Own design based on the Balance Sheets of the farms [3].

## Descriptive statistics for Turnover and Net Profit by dairy farm.

The variation coefficients in case of turnover have in general low values, below 10 % in case of F1, F2, F4 and F5, reflecting that the turnover was homogenous from a year to another. In case of F3 and F6, the coefficient of variation varied between 10% and 20 % showing a relatively homogenous level around the mean.

Regarding the coefficient of variation for net profit, it was noticed that in case of F5 and F6, the data were relatively homogenous (10%<CV<20%). In case of F4, the net profit was relatively heterogeneous ((20%<CV<30%), in case of F1, F2 and F3, the coefficient of variation registered values over 30%, reflecting a heterogeneous distribution of the data (Table 1).

Table 1.Descriptive statistics for Turnover and Net Profit by dairy farm

| | F1 | F2 | F3 | F4 | F5 | F6 |
|---|---|---|---|---|---|---|
| | Turnover | | | | | |
| Mean | 4.94 | 6.02 | 8.96 | 7.98 | 1.51 | 5.86 |
| St. Dev. | 0.49 | 0.41 | 1.58 | 0.71 | 0.11 | 0.71 |
| Coeff. of var. (%) | 9.91 | 6.81 | 17.63 | 8.89 | 7.28 | 12.11 |
| Min. | 2.08 | 4.36 | 3.83 | 4.78 | 1.01 | 3.93 |
| Max. | 8.17 | 8.11 | 16.03 | 11.33 | 2.19 | 10.11 |
| | Net Profit | | | | | |
| Mean | 0.50 | 0.56 | 0.22 | 1.19 | 0.30 | 0.69 |
| St. Dev. | 0.16 | 0.19 | 0.22 | 0.34 | 0.06 | 0.12 |
| Coeff. of var. (%) | 32.00 | 33.92 | 100.00 | 28.57 | 20.00 | 17.39 |
| Min. | 0.01 | 0.06 | -0.92 | 0.13 | -0.12 | 0.09 |
| Max. | 1.58 | 2.22 | 1.46 | 3.73 | 0.65 | 1.49 |

Source: Own calculations based on the Balance Sheets of the farms [3].

**Dairy farms' ranking based on the average values of the independent and dependent variables** is presented in Table 2. The results show that F5 came on the 1st position four times, F2 came on the 1nd position also four times, F1 came on the 3rd position four times, F3 came on the four position two times and on the 5th position one time, F4 came on the 5th position three times, and F6 came on the 6th position three times. Therefore, this is the classification of the dairy farms based on their performance for these five specific indicators: Working capital turnover WCT, Total assets turnover TAT, Fixed assets turnover FAT, Return on total assets ROA and Return on equity ROE.

**The correlation coefficients** by pair of indicators for each firm are presented in Table 3.

***In case of the relationship between WCT and ROA***, the values of the correlation coefficients varied between r = 0.146 for F5, the minimum value, and r = 0.540 for F4, the maximum value. The values of r reflects that there is not any relationship between WCT and ROA in case of F5, and in case of F1, F2, F3, and F6, there is a weak relationship. In case of F4, r value reflects a moderate relationship between the two indicators. All the coefficients of

correlation are not statistically significant, as $t_{calc} < t_{tab}$ for $\alpha = 0.05$.

Table 2. The ranks of the dairy farms depending on the average value of the independent and dependent studied variables

| | F1 | F2 | F3 | F4 | F5 | F6 |
|---|---|---|---|---|---|---|
| The mean values of the independent variables: WCT, TAT and FAT | | | | | | |
| WCT | 2.16 | 2.14 | 1.87 | 1.25 | 2.22 | 1.24 |
| Rank for WCT | 2 | 3 | 4 | 5 | 1 | 6 |
| TAT | 0.62 | 0.65 | 0.51 | 0.46 | 1.91 | 0.43 |
| Rank for TAT | 3 | 2 | 4 | 5 | 1 | 6 |
| FAT | 0.89 | 0.95 | 0.73 | 0.77 | 4.67 | 0.80 |
| Rank for FAT | 3 | 2 | 6 | 5 | 1 | 4 |
| The mean values of the dependent variables: ROA and ROE | | | | | | |
| ROA | 0.0603 | 0.05673 | 0.00609 | 0.11332 | 0.28274 | 0.05293 |
| Rank for ROA | 3 | 4 | 6 | 2 | 1 | 5 |
| ROE | 0.083 | 0.087 | 0.0259 | 0.12558 | 0.0424 | 0.010918 |
| Rank for ROE | 3 | 2 | 5 | 1 | 4 | 6 |

Source: Own calculations.

***In case of the relationship between TAT and ROA***, the value of the correlation coefficients ranged between r = 264 for F1, the minimum value and r =0.703 for F4, the maximum value. In case of F1, F2 and F5, r value reflects a weak relationship, in case of F3, F4 and F6, r value signifies a moderate relationship.

Almost all the coefficients of correlation are not statistically significant, as $t_{calc} < t_{tab}$ for $\alpha = 0.05$, except r = 0.703 whose $t_{calc} = 2.800 > t_{tab} = 2.306$ for $\alpha = 0.05$, reflecting that r value is statistically significant.

***In case of the relationship between FAT and ROA***, the value of the correlation coefficients varied between r = 0.231, the minimum value in case of F1, and r = 0.806, the maximum value, for F4. The values of r reflected the inexistence of a relationship between the two indicators in case of F1, a weak connection in case of F2, F3, F5, and F6, and a strong link in case of F4.

Almost all the coefficients of correlation are not statistically significant for $\alpha = 0.05$, except r = 0.806 in case of F4, whose $t_{calc} = 3.856 > t_{tab} = 2.306$ for $\alpha = 0.05$, and also higher than $t_{tab} = 2.998$ for $\alpha = 0.02$ and higher than $t_{tab} = 3.499$ for $\alpha = 0.01$ reflecting that r value is statistically very significant.

***In case of the relationship between WCT and ROE***, the values of the correlation coefficients ranged between r = 0.251, the minimum value for F3, and r = 0.657, the maximum value for F5. In general, the values of the correlation coefficients showed the non existence of any link between these two indicators in case of F3, a weak relationship in case of F1, F2, and F6, a moderate link in case of F4 and F5. Despite that almost all the values of the coefficients are not statistically significant for $\alpha = 0.05$, in case of F5, the r value is significant as $t_{calc} = 2.469 > t_{tab} = 2.306$.

***In case of the relationship between TAT and ROE***, the values of the correlation coefficients varied between r = 0.212 in case of F2 and r = 0.579 in case of F5. The value of r in case of F2 showed a lack of link between the two indicators, in case of F1 and F3, r value reflected a weak relationship and in case of F4, F5 and F6 r value confirmed a moderate connection. Almost all the correlation coefficients are not statistically significant, except the case of F5 where r = 0.679 for which $t_{calc} = 2.611 > t_{tab} = 2.306$ for $\alpha = 0.05$.

***In case of the relationship between FAT and ROE***, the values of the correlation coefficients ranged between r = 0.249, the minimum value registered by F1, and r = 0.669 in case of F4. For F1, F2, F3, F6, the r values reflected a weak relationship between these indicators, while in case of F3 and F4, it was noticed a moderate connection. Almost all the correlation coefficients are not statistically significant, except r = 0.669, whose $t_{calc} = 2.553 > t_{tab} = 2.306$ for $\alpha = 0.05$.

Table 3. The coefficients of correlation, the coefficients of determination and the polynomial regression equations

| | r | $R^2$ | Polynomial regression equations |
|---|---|---|---|
| The impact of WCT on ROA | | | |
| F1 | 0.309 | 0.0957 | $Y= -0.04454 X^2 + 0.2243 X - 0.2104$ |
| F2 | 0.396 | 0.1573 | $Y= 0.0871 X^2 - 0.2882 X+ 0.2698$ |
| F3 | 0.319 | 0.1019 | $Y = -0.0907 X^2 + 0.4122 X - 0.4695$ |
| F4 | 0.540 | 0.2920 | $Y= - 0.4599 X^2 + 1.1287 X - 0.6082$ |
| F5 | 0.146 | 0.0213 | $Y = -0.0214 X^2 + 0.075X + 0.2441$ |
| F6 | 0.323 | 0.1046 | $Y = 0.0357 X^2 - 0.0995 X + 0.1134$ |
| The impact of TAT on ROA | | | |
| F1 | 0.268 | 0.0720 | $Y =0.2233 X^2 - 0.1342 X + 0.054$ |
| F2 | 0.264 | 0.0700 | $Y = - 1.0252 X^2 +1.37 X - 0.3912$ |
| F3 | 0.533 | 0.2850 | $Y = -4.0679 X^2 + 4.8524 X - 1.4286$ |
| F4 | 0.703* | 0.4944 | $Y = -1.3951 X^2 + 1.6756 X - 0.3953$ |
| F5 | 0.319 | 0.1019 | $Y = -0.0732 X^2 + 0.3257 X - 0.0118$ |
| F6 | 0.601 | 0.3611 | $Y = 0.2784 X^2 - 0.0757 X + 0.0302$ |
| The impact of FAT on ROA | | | |
| F1 | 0.231 | 0.0532 | $Y = 0.1615 X^2 - 0.2381 X + 0.1399$ |
| F2 | 0.421 | 0.1770 | $Y = -0.7609 X^2 + 1.3610 X -0.5195$ |
| F3 | 0.522 | 0.2729 | $Y = -2.1271 X^2 + 3.5746 X -1.4771$ |
| F4 | 0.806*** | 0.6505 | $Y = -0.2725 X^2 + 0.6055 X - 0.2170$ |
| F5 | 0.361 | 0.1300 | $Y = - 0.00 X^2 - 0.00 X + 0.3100$ |
| F6 | 0.525 | 0.2761 | $Y = 0.0196 X^2 - 0.0073 X + 0.0419$ |
| The impact of WCT on ROE | | | |
| F1 | 0.317 | 0.1004 | $Y = -0.0181 X^2 + 0.1289 X- 0.1083$ |
| F2 | 0.496 | 0.2460 | $Y = 0.2173 X^2 - 0.7776 X + 0.7447$ |
| F3 | 0.251 | 0.0632 | $Y = -0.1353 X^2 + 0.4929 X - 0.3994$ |
| F4 | 0.565 | 0.3188 | $Y = -0.8848 X^2 + 2.2276 X - 1.2349$ |
| F5 | 0.657* | 0.4323 | $Y = 0.1552 X^2 - 0.6117 X + 0.8546$ |
| F6 | 0.314 | 0.0987 | $Y = 0.0679 X^2 - 0.1926 X + 0.2321$ |
| The impact of TAT on ROE | | | |
| F1 | 0.298 | 0.0886 | $Y = 0.3191 X^2 - 0.2111 X + 0.8660$ |
| F2 | 0.212 | 0.0449 | $Y = -1.9098 X^2 + 2.4290 X - 0.6676$ |
| F3 | 0.264 | 0.0700 | $Y = -3.594 X^2 + 3.9674 X - 1.0473$ |
| F4 | 0.625 | 0.3905 | $Y = - 0.2379 X^2 + 2.4491 X - 0.5435$ |
| F5 | 0.679* | 0.4608 | $Y = 0.0713 X^2 - 0.1155 X + 0.3262$ |
| F6 | 0.568 | 0.3230 | $Y = 0.1958 X^2 + 0.1722 X - 0.0030$ |
| The impact of FAT on ROE | | | |
| F1 | 0.249 | 0.0619 | $Y = 0.1409 X^2 - 0.1752 X = 0.1237$ |
| F2 | 0.447 | 0.2003 | $Y = 1.2300 X^2 + 2.1575 X - 0.8030$ |
| F3 | 0.469 | 0.2203 | $Y = -2.5905 X^2 + 4.0245 - 1.4939$ |
| F4 | 0.669 | 0.4482 | $Y = - 0.3741 X^2 + 0.8297 - 0.2586$ |
| F5 | 0.574 | 0.3300 | $Y = 00 X^2 + 0.00 X +0.36$ |
| F6 | 0.488 | 0.2382 | $Y = - 0.0151 X^2 + 0.0905 + 0.0487$ |

*Statistically significant for $\alpha = 0.05$.
*** Statistically significant for $\alpha = 0.05$, $\alpha = 0.02$ and $\alpha = 0.01$.
Source: Own calculation.

**The coefficients of determination** are also shown in Table 3. Their values reflect in general a small percentage of the variation of the dependent value caused by the independent value.

But, there are a few exceptions which have to be mentioned as follows:

-The variation of ROA is determined in a low proportion by the variation of WCT in all the firms.

- The change of ROA is caused in a small proportion by the change of TAT in case of F1, F2, F3, F5 and F6, but is case on F5 it is 49.44 % influenced by TAT.

-The variation of ROA is determined in a very small proportion by the variation of FAT in

almost all the firms, except F4, where it is influenced 65.05 % by FAT variation.

-The variation of ROE is caused in a weak proportion by WCT variation in almost all the firms, except F5, where 43.23 % of its variation is determined by the change of WCT.

-The change of ROE is caused in a small proportion by the change of TAT in almost all the companies, except F5 where 46.08 % of its variation is determined by the change of TAT.

-The change of ROE is caused in a low proportion by the change of FAT, in almost all the companies, except F4 where its variation is caused 44.82 % by the FAT variation (Table 3).

**The polynomial regression equations** reflecting the impact of the independent variables belonging to turnover on the effectiveness in terms of ROA and ROE are shown in Table 3. They could serve for quantifying in what measure an increase by one unit of the independent variable could led to a change of the dependent variable.

In case of the firms where the r and $R^2$ values are small, reflecting either the inexistence of relationship or a weak connection between the studied variables, it is clear that an increase by one unit of the value of X will have no impact on the Y value.

But, in case of the companies where the r and $R^2$ values are statistically significant, an increase of the independent variable will have an important impact of the dependent value.

For example, in case of F4, if TAT will increase by 1 unit, ROA will be 0.2609. Also, in the same company, if FAT will increase by 1 unit, ROA will increase by 0.333. If FAT will grow by 1 unit, ROE will go up by 0.970.

In F5, if WCT will raise by 1 unit, then ROE will increase by 3.895. Also, in F5, if TAT will increase by 1 unit, ROE will grow by 0.282.

## CONCLUSIONS

The paper proved that turnover is important to be included among the objectives of the development strategy of the financial management in the companies dealing with dairy farming, but it is not the only indicator which could led to the growth of the effectiveness and profitableness.

Despite that the six analyzed companies dealing with dairy farming are in the top for their financial results, it was noticed a large difference among them regarding the dynamics of sales and profit, the share of profit in the turnover and the impact of turnover on return on assets and equity.

Taking into account the obtained results for working capital turnover, total assets turnover, fixed assets turnover, and return of assets and equity, the companies occupied the following positions, in the decreasing order: F5, F2, F1, F3, F4 and F6.

The correlation coefficients proved in almost all the cases, with a few exceptions, that it is a weak relationship between the analyzed pairs of turnover indicators: working capital turnover (WCT), total assets turnover (TAT) and fixed assets turnover (FAT) and the return on assets and equity (ROA and ROE). Therefore, WCT, TAT and FAT have a low importance in determining the effectiveness and profitableness of a dairy farming company.

However, there were found a few exceptions. It is about the company F4, where the correlation coefficient between WCT and ROA was r =0.540, between TAT and ROA r=0.703, between FAT and ROA r = 0.806 and WCT and ROE, r=0.565 showed that the independent variables WCT, TAT and FAT could be taken into consideration among the factors sustaining the growth of ROA and ROE. Also, in F5, WCT could positively influence ROE, as r= 0.657, in F6, TAT could have a positive impact on ROA as r = 0.601 and FAT on ROA as r = 0.525.

The determination coefficients reflected that in the company F4 the variation of WCT and TAT could influence the variation of ROA, as well as the variation of FAT could influence in a higher proportion the variation of ROE. In F5, the variation of WCT and also the variation of TAT have a positive impact in a higher measure on ROE than in the other companies.

The polynomial regression models showed that only in F4 and F5 the increase of the independent variables could led to the growth of the effectiveness. In F4, one more unit of TAT could determine an increased ROA by 0.2609, and one more unit of FAT could determine a higher ROA by 0.333 and of ROE by 0.970. In F5, one more unit of WCT could increase ROE by 3.895, and one more unit TAT will determine a higher ROE by 0.282.
Therefore, in financial management of the dairy companies, the managers must be aware that the increase of turnover has not always a benefic effect on the profitability of the firm. Turnover must be an indicator which has to be carefully managed in order to get a higher effectiveness and profitability of the business in dairy farming.

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## REFERENCES

[1]Angel, E., Popescu, A., 2009, Milk Quality Management at Flav O'Rich Dairy, USA, Scientific Papers Management, Economic engineering in agriculture and rural development, Vol.9(1), p.11-14.
[2]Arnis, N. I., Kolias, G. D., Filios, V. F., 2008, The profitability of the Greek retail firms and the relations among the determinants (in Greek). Review of Economic Sciences, 14, 161-180.
[3]Balance Sheets of F1, F2, F3, F4, F5, F6 concluded at the end of the years 2009-2018.
[4]Caruntu, R.C., 2011, Theoretical aspects regarding the turnover analysis, Annals of "Constantin Brâncuși" University, Târgu Jiu, Series Economics, No. 3, 177-183.
[5]Colton, T., 1974, Statistics in Medicine, Little Brown and Company, Boston, Mass.02106, XII, 372 pp.
[6]Dragotă, V., Dragotă, M., Obreja, L., Ciobanu, D., 2003, Financial Management, Vol. I & II, Economica Publishing House, Bucharset, pp.142-149.
[7]Dumbrava, M., 2010, Model of analysis of firm performance, Theoretical and applied economics, Vol. XVII, No. 8(549), 105-119.
[8]Ghic, G., Grigorescu, C. J., 2009, Economic and financial analysis, Universitaria Publishing House, Bucharest, 130-135.
[9]Isfanescu, A., Robu, V., Hristea, A. M., Vasilescu, C., 2002, Economic and financial analysis, ASE Publishing House, Bucharest, 75-80.
[10]McLaughlin, E., 2019, Case study: Financial analysis, https://www.sophia.org/tutorials/case-study-financial-analysis--2, Accessed on Dec.20, 2019.
[11]Pirvutoiu, I, Popescu, A., Grigoras, M.A., 2010, Profitability Analysis – a Study Case Agroindustriala Pantelimon Joint Venture Dairy Farming Company, Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development, Vol.10(2)/2010, 161-164.
[12]Popescu, A., 2003, Financial Analysis in Dairy Farming, The 2nd International Symposium on "Prospects for the 3rd Millenium Agriculture", USAMV Cluj-Napoca, 9-11 Oct. 2003, Bulletin of UASVM Cluj-Napoca, Zootehnie si Biotehnologii (Animal Science and Biotechnologies), Vol.59, 11-14.
[13]Popescu, A., 2004, Prospects for dairy farm management under milk quota. The International symposium on"Prospects for the 3rd Millenium Agriculture", USAMV Cluj-Napoca, 20-23 Oct.2003, Bulletin of UASVM Cluj-Napoca, Zootehnie si Biotehnologii (Animal Science and Biotechnologies), Vol.60, 14 - 20.
[14]Popescu, A., 2004, Financial Statement - a tool in decision making in dairy farming. The International symposium on"Prospects for the 3rd Millenium Agriculture", USAMV Cluj-napoca, 20-23 Oct.2003, Bulletin of USAMV Cluj-Napoca, Zootehnie si Biotehnologii (Animal Science and Biotechnologies), Vol.60, 384 - 389.
[15]Popescu, A., Muresan, G., 2004, Analysis in dairy farming in Arad County achievements and prospects under the background of Romania's entry into the E.U. The International symposium on "Prospects for the 3rd Millennium Agriculture", USAMV Cluj-Napoca, 20-23 Oct.2003, Bulletin of UASMV Cluj-Napoca, Zootehnie si Biotehnologii, (Animal Science and Biotechnologies), Vol.60, p.385.
[16]Popescu, A., 2005, Research concerning dairy cows, farm structure and milk performances in the proximity of the capital, The 4th International Symposium "Prospects of the 3rd Millennium Agriculture, 6-7 Oct.2005, Bulletin UASVM Cluj-Napoca, Romania, Series Zootehnie si Biotehnologii si Medicina Veterinara (Series Animal Science and Biotechnologies and Veterinary Medicine), Vol.61, 399-403.
[17]Popescu, A., 2006, Research concerning the economic impact of investments in dairy farms of various size, International Symposium "Prospects of Agriculture in the 3rd Millennium", UASVM Cluj-Napoca, 5-6 October 2006, Bulletin of USAMV Cluj-Napoca, Romania, Seria Zootehnie si Biotehnologii si Medicina Veterinara (Series Animal Science and Biotechnologies and Veterinary Medicine), No.62, 8-12.
[18]Popescu, A., 2006, Study upon milk market in the EU countries, Bulletin of the University of Agricultural Sciences and Veterinary Medicine, Animal Husbandry

and Biotechnologies, Vol. 62, 214, Symposium on Prospects for the 3rd Millenium Agriculture, Oct.5-6, 2006, Cluj-Napoca
[19]Popescu, A., 2006, Managementul financiar in fermele de vaci, Ed. Dominor Bucuresti, (Financial management in dairy farms, Dominor Publishing House, Bucharest), 69 p.
[20]Popescu, A., 2007, Analiza financiara, Ed.Dominor, Bucuresti (Financial Analysis, Dominor Publishing House, Bucharest), 188-194.
[21]Popescu, A., 2009, Considerations upon Net Working Capital Management, Scientific Papers Series Management, Economic engineering in agriculture and rural development, Vol.9(2):125-128.
[22]Popescu, A., 2010, Net Sales Analysis in a Dairy Farming Company, Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development, Vol.10(2):179-184.
[23]Popescu, A., 2010, Research concerning Gross Margin Forecast based on Milk Yield using the Least Square Method of Regression Analysis, Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development, Vol.10(2):173-178.
[24]Popescu, A., 2012, Economia productiei in ferma de vaci, Ed.Eikon, Cluj Napoca, coeditare cu Ed.RawexComs, Bucuresti, (Production economics in dairy farms, Eikon Publishing House, Cluj Napoca, coediting with RawexComs Publishing House, Bucharest), 45-52.
[25]Popescu, A., 2014, Research on milk cost, return and profitability in dairy farming, Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development, Vol.14(2):219-222.
[26]Popescu, A., 2014, Research on profit variation depending on marketed milk and production cost in dairy farming, Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development, Vol.14(2):223-230.
[27]Popescu, A., Condei, R., 2014, Considerations regarding the criteria of efficiency for the classification of dairy farms, Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development, Vol.14(3):256-265.
[28]Popescu, A., Condei, R., 2014, Study on the average marketed milk as a measure of profitableness threshold in dairy farms, Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development, Vol.14(4):219-222.
[29]Popescu, A., David, L., 2014, Research on regression modeling of profit related to milk yield in dairy farming, Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development, Vol.14(4):211-218.
[30]Popescu, A., 2015, Research on the top Romanian trademarks in the milk and dairy products market, Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development, Vol.15(1): 367-376.
[31]Popescu, A., 2015, Research on the trends in milking livestock and milk production in Romania, Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development, Vol.15(1):377-386.
[32]Popescu, A., 2015, Research on the trends in milk production and consumption in Romania, Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development, Vol.15(1):387-392
[33]Popescu, A., 2015, Research on the trends in Romania's milk and dairy products foreign trade, Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development, Vol.15(1):391-398.
[34]Popescu, A., 2015, Regression modeling in prediction milk production depending on the dairy bovine livestock, Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development, Vol.15(4): 225-230.
[35]Popescu, A., 2015, Multiple correlation and regression in predicting milk price, Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development, Vol.15(4):231-238.
[36]Popescu, A., 2016, The milk market concentration and competition thresholds in Romania, Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development, Vol.16(2):247-253.
[37]Popescu, A., 2017, Trends in milk market and milk crisis impact in Romania, Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development, Vol.17(2):281-290.
[38]Popescu, A., Angel, E., 2019, Cow raw milk quality and its factors of influence in relationship with milk price, Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development, Vol.19(1): 421-440.
[39]Robu, V., Georgescu, N., Analiza economico-financiara, ASE, (Economical and financial analysis, ASE) Digital Library, http://www.biblioteca-digitala.ase.ro/biblioteca/carte2.asp?id=113&idb=6, Accessed on Dec.20, 2019.
[40]Warrad, L., Al Omari, R., 2015, The Impact of Turnover Ratios on Jordanian Services Sectors' Performance, Journal of Modern Accounting and Auditing, February 2015, Vol. 11(2):77-85, http://www.davidpublisher.com/Public/uploads/Contribute/551d04d6b02d9.pdf, Accessed on Dec.20, 2019