The Impact of the Financial Profile on the Resilience Capacity of the Agri-Business Companies in Romania

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Abstract

In general, the effect of the crisis over economy could be very big as in 2008. 2020 was a year with a double crisis in Romania: COVID-19 and draught. From a sample of 2.970 companies from the Romanian agri-business sector, 1.176 had decrease of the profit. The present study analyses the financial situation of 503 companies which passed from profit in 2019 to losses in 2020. The methodology is based on linear regression method which considers the variation of the net profit and independent factors as variation of turnover and the level of fixed assets, stocks, receivables and cash in the year before the crisis. The higher turnover decrease and company size, the higher negative net result variances. Only the companies with a good treasury position went through the crisis more easily. If the companies will not assure a sustainable growth, they will be exposed in front of crisis periods.

Key words: crisis, agriculture, net result variances, turnover, financial profile
J.E.L. classification: G01, G31, Q12, Q14

1. Introduction

The resilience capacity of the companies should be increased in a continuous way before the crisis appear. This behavior gives companies the possibility to apply measures for correction in short-term and the reaction capacity could be very good. 2020 was considered an important year from crisis point of view for the agricultural sector in Romania. 2020 was affected not only by the climate effects dominated by draught, but also by the reduced demand due to COVID-19. Even the demand decreased, the prices for crops remained stable and therefore the revenues of the farmers decreased dramatically. The effect of draught was much higher than the one of COVID-19. The total production of wheat was at 62% compared with 2019, corn at 58%, sun-flower at 26% and rape-seeds at 92%. (Romanian National Statistics Institute, 2020) The main reason for this huge decrease in revenues was due to the yields obtained considering the fact that the surfaces were more or less the same in term of number of hectares. (Romanian National Statistics Institute, 2020) The crop prices were close to the ones of previous year. Therefore, multi-disciplinary efforts for determining the impact of the climate-changes are put for having a clearer image about the prices volatility and negative effects on yields. (Thompson et al, 2018) Price volatility represents a risk for the global food security. If the productions cannot satisfy the internal demand of the countries, these may decide to ban the exports and therefore, the global markets can be affected both from quantities and prices point of view. Each financial crisis which affects both micro and macro environment reveals major vulnerabilities. In the absence of financial reserves in the private sector, the uncertainty affects significantly the results of the entrepreneurs. (Busega, 2015) Contrary to the general theories that climate changes affect the crop prices and generate high volatility, according with (Thompson *et al*, 2018) the prices can be stabilized using crop storage, meaning that the offer will be limited. The yields are reduced by the climate changes, but the incomes of the farmers can be the same or even better due to price increases. This is the perception and behavior of the Romanian farmers as well. The crops are not included in future contracts for securing the price or even sold immediately after the harvest. The farmers prefer to keep the crops on stock taking additional risks of price volatility as the market price in Romania

is coming from outside the country, even Romania is an important player in the agricultural European market. In 2020, the yields decreased dramatically up to minus 40%, but the prices remained more of less the same as in the previous year. This led to revenues decrease for all the market.

This study explores the financial profile of the companies that had positive net result in 2019 and they ended with losses in 2020. Determinants as company size, policy for dividends, debt structure, cash-flow or working capital can influence the level of cash. They are different depending on the period we are referring to: pre or post crisis period. The working capital, cash-flow and leverage should be applicable for both periods, before and after the crisis. (Batuman *et. al*, 2021) The study observes the relationship between the decrease of the net result and the turnover decrease and the financial profile of the company expressed through the assets structure.

Contrary to other sectors, like retail where the turnover needs to be sustained by high level of stocks, in agriculture there is no need of stocks to sustain the future production and therefore the turnover. The actors of the agriculture sector in Romania invested in storage capacity for keeping the stocks with the believe that the prices can increase. The stocks are used for a speculative purpose and this involves big market risks in term of prices. The quality of the assets, in general the stocks, should be tested properly as they can be affected by depreciation. There is no good accounting culture for reporting the value of the assets properly. Considering that the stocks can bring high risks due to price volatility, the big companies are more exposed to this risk. The probability for the big companies to be affected during crisis is much higher than the one for the small ones.

The study methodology involved the selection of the companies which had profit in 2019 and loss in 2020 and the use of the regression model for identifying the relationship between the net profit decrease and the variation of the turnover and the balance sheet profile in term of assets.

The study concludes that in the view of the Romanian farmers, the very good business perspective of the assets structure capable to sustain the business growth was transformed into a negative result due to the immediate effect of the 2020 crisis. The higher was the level of turnover decrease and the dimension of assets, especially stocks and receivables, the higher was the probability to transform the profit in loss. This negative effect can be partially balanced by a good treasury position. This significant statistically relationship is explained by the lack of liquidity in the market in 2020 and the impossibility of the farmers to cover the costs due to the revenue decreases: same prices for crops, but lower yields. The market requests and the logistics shortage have led to difficulties in selling the products and did not allow for taking advantage of the stocks from both current and last years.

The balance sheet effects had negative impact on the net profitability for the big companies in term of assets with higher turnover decrease. It seems that they do not have big resilience capacity and a more conservative approach should be used in the future. The famers have a lot of instruments for addressing the business risk as future contracts, insurance or they can use the new technologies and innovations to decrease the costs and to increase the level of control over the fields. This will allow them to act quickly in case of necessity and to adapt the technological decisions to the new reality.

The study will be completed with other relevant sections as literature review, methodology, findings and conclusions.

2. Literature review

Along the macro-economic issues and draught, the COVID-19 crisis came with a double negative situation for the farmers' revenues: decrease of the consumption capacity and an increase of the competition at market level. (Abilda et al, 2024) The expectations for the next decades are related to a fast-growing population that will require more food production. This is going to be a challenging situation considering the climate changes. (Roubík *et al*. 2022) Crisis factors as wars or pandemias can disrupt the supply chains for both crops and agriculture inputs, the food security being in risk. A such situation can be amplified by other factors like exchange rates volatility. (Urak *et al*, 2018) The crops price volatility can be reduced by the production increase. This can be sustained by state through comprehensive policies applied in the rural areas. The purchasing of agricultural inputs and development of the warehouse should be on top of the priorities for governments. (Urak *et al*, 2018) The structural reforms are necessary for improving the companies' productivity. On the other hand, the process of "immunization" should create a protection against both external shocks approach

related to general risks in agriculture. (Busega, 2015) The management decisions are taken more often depending on the crops price volatility and not considering the climate change. This is valid in the countries where the state intervenes and offers subsidies in case of calamities. (Lehmann *et al*. 2013) The Romanian farmers do not have a clear visibility on the posible aid coming from the state and they have to consider the climate changes as a very important business risk. The most used method to hedge the crop prices is the future contract, but the farmers prefer the natural hedging or the speculative position. This behavior depends on the financial perspective over the innovation processes. (Nienhaus *et. al* 2023)

During crisis periods, the companies should make compromises all the time. They tend to reduce the costs, especially with the work force, training programs or marketing. The effect on short-term could be positive, but on medium and long-term will affect the employees and the trust in the company will decrease. (Ogbonnaya *et al*, 2024) So, the adverse effects of crisis, including COVID-19, can be addresses using different cost cutting strategies, especially for seconday costs, changes in the supply chains using the proximity, innovations in term of production proceses and management system transformation. (Abilda *et al*, 2024)

For a company it is very important to have access to the finance sources. The trade credit is a very good alternative for the bank credit during crisis periods. The companies who relied more on trade credit had better performance considering the difficult external situation. (Heo, 2024) The farmers relay on trade credit in general as they find more flexibility in the discussions with the suppliers, but the cost is much higher than the one asked by a bank. This can involve financial difficulties when the farmers are to exposed and the percentage of stocks and receivables are significant in the balance sheet. They are covered by debts with high costs, even they are not seen directly in the interest expenses. The finance cost is included by the suppliers in the cost of goods.

The new technologies are not considered a main focus for farmers in general, (Passarelli *et al*, 2024) but in special for the Romanian farmers. (Passarelli *et al*, 2024) There is no link between environmental performance and the financial performance in countries like Romania. The orientation through "green" economy is not perceived yet as a sustainable factor for the business development. The business environment from Romania does not have yet this type of behavior, (Pintea *et. al* 2014) but it has to change as the new regulations will go in this direction more and more. The long-lived assets presented in the agricultural sector are considered investments with low-liquidity. They can be easily devaluated by the climate changes which can contribute at their devaluation. This can influence the balance sheets of the companies presented in the agribusiness sector. The accountants have the need to use standards for this topic, considered very important. (Tingey-Holyoak *et al*, 2024) It is proved that a farmer which invests in new technologies will not do it again so soon. The investment decision is taken depending on the low education related to modern technologies, deficiencies of experienced people and also due to the missing information. (Passarelli *et al*, 2024) The specific literature does not contain studies that present the main factors that quantify the probability of adopting modern technologies during the crisis period by the actors from agricultural sector. (Passarelli *et al*, 2024)

It is difficult to recover the losses in agriculture sector, especially in some areas if the situation continues for more than two consecutive years. During the pandemic period and just after that, the countries showed efforts to keep the agricultural markets and food industry at a satisfactory level, but the supply chains and the market access was not secured yet. (Roubík *et al*. 2022)

The crisis situation should be accepted and the farmers should adapt the business to the new normal, (Abilda et al, 2024) considering new methods as new technologies as part of innovation, hedging contracts for securing the prices, qualitative agricultural inputs and focus on the "green" agriculture as this will be the trend in many countries imposed by the state authorities. Ideally for the Romanian farmers is to increase the productivity in the same time with the decrease of the risk which are directly connected with the value of the assets.

3. Research methodology

The study approach was through a two steps method for analysis the 2019 and 2020 financial data for 2.979 companies. All the companies included in the sample are present in the Romanian agribusiness sector with crops production as main activity. The first step was to select the data for the

companies which had profit in 2019 and loss in 2020. The results showed that 503 companies were in this position. In the second step, a regression model was used for describing the relationship between the net profit variances (NPV) as dependent variable and the turnover variances (TUV), fixed assets (FA), stocks (ST), receivables (RE) and cash (CA) as independent variables, for the 2019 financial data. The analysis can be considered a stress test over the financial position of the analyzed companies in strong connection with the business volatility expressed through the turnover decrease.

The regression equation is: $NPV = \alpha + \beta1\ TUV + \beta2\ FA + \beta3\ ST + \beta4\ RE + \beta5\ CA + e$, where α is a constant variable, e is residual and the regression coeficients are $\beta1$, $\beta2$, $\beta3$, $\beta4$. Multiple tests were performed for validating the model using the SPSS software: normality, multicollinearity, autocorrelation, heteroscedasticity, correlation coefficient and determination coefficent tests.

4. Findings

The financial situation was very affected in 2020 at both macro and micro level in Romania under the effects of multiple crisis. Compared with other years, 2020 was dominated by severe drought and on top of that there was the negative impact of COVID-19 with consequences on blockages on the logistic routes, impossibility of working for some people and other aside effects.

Analyzing the sample of 2.979 companies, we can observe that the turnover decreased with 7% and the net profit decreased with 48% (Table no. 1 and 2). There were 503 companies which had profit in 2019 and loss in 2020, 2.098 companies with profit in both years, 221 companies with losses in both years and 157 companies which succeeded to transform the loss of 2019 in profit in 2020.

The highest decrease in turnover (-25%) was for the 503 companies which had profit in 2019 and losses in 2020.

Table no. 1 Turnover evolution: 2020 vs 2019 (RON)

	Year		No of companies	Turnover (kRON)			
No	2019	2020		2019	2020	2020 vs 2019	2020 vs 2019
1	Profit	Loss	503	3,287,189	2,451,291	-835,898	-25%
2	Profit	Profit	2,098	21,212,199	20,285,958	-926,242	-4%
3	Loss	Loss	221	584,177	476,573	-107,604	-18%
4	Loss	Profit	157	545,129	651,760	106,631	20%
Total			2,979	25,628,694	23,865,581	-1,763,112	-7%

Source: (Author's own research)

Approximately 60% of the net profit decrease was represented by the variance of the result for the 503 companies which obtained profit in 2019 and loss in 2020. So, 17% in term of number of companies contributed with 60% net result decrease.

Table no. 2 Net profit evolution: 2020 vs 2019 (RON)

	Year		No of companies	Net profit (kRON)			
No	2019	2020		2019	2020	2020 vs 2019	2020 vs 2019
1	Profit	Loss	503	187,238	-381,361	-568,599	-304%
2	Profit	Profit	2,098	2,191,589	1,797,671	-393,918	-18%
3	Loss	Loss	221	-290,434	-436,177	-145,743	-50%
4	Loss	Profit	157	-89,000	63,072	152,072	171%
Total			2,979	1,999,393	1,043,205	-956,188	-48%

Source: (Author's own research)

Based on the Tabel no. 3, in average the percentage of the cash within the balance sheet structure for 2019 is not significant. The stocks and receivables have a significant percentage along the fixed assets.

Table no. 3 Descriptive statistics (RON) - 2019

Variable	Mean	Std. Deviation	N
PNV	-1,130,416	2,475,655	503
TUV	-1,661,825	8,798,484	503
FA	3,959,424	9,700,759	503
ST	1,845,677	7,227,309	503
RE	1,835,567	10,543,217	503
CA	547,759	2,735,471	503

Source: (Author's own research, SPSS)

The Pearson correlation test shows a strong correlation between all the variables taken into consideration (Table no. 4).

*Table no. 4 Pearson correlation*

Variable	PNV	TUV	FA	ST	RE	CA
PNV	1.000					
TUV	0.363**	1.000				
FA	-0.871**	-0.469**	1.000			
ST	-0.878**	-0.618**	0.884**	1.000		
RE	-0.590**	-0.540**	0.447**	0.667**	1.000	
CA	-0.290**	-0.709**	0.271**	0.487**	0.819**	1.000

** Correlation is significant at the 0.01 level (2-tailed)
Source: (Author's own research, SPSS)

All the other tests performed and presented in the figure 1 and 2, tables no. 5, 6 and 7 are validating the model.

Figure no. 1. Normality test: Histogram and Normal P-P plot of regression standardized residual
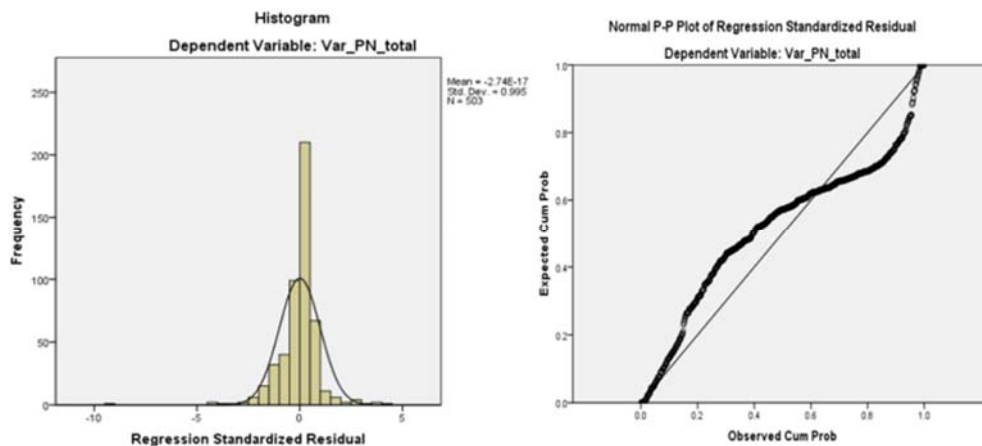
Source: (Author's own research; SPSS)

The statistical F test reflects a p-value < 0.05 concluding the fact that the model is statistically significant in term of independent variables.
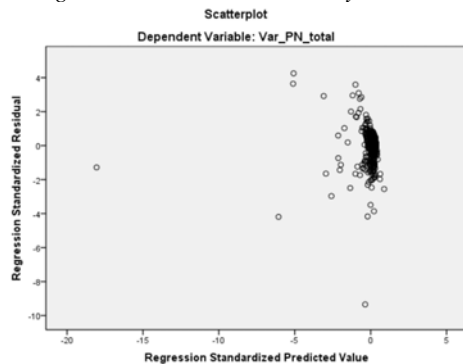
Table no. 5 Statistical F test

Model.	Sum of Squares.	Df.	Mean Square.	F.	Sig.
	ANOVA [b]				
Regression	2,697,054,723,677,640	5	539,410,944,735,529	706.168	0.000
Residual	379,636,743,902,970	497	763,856,627,571		
Total	3,076,691,467,580,620	502			

a. Predictors: (Constant), TUV, CR, DR, FA, ST, RE, CA
b. Dependent variable: PNV
Source: (Author's own research, SPSS)

Figure no. 2. Heteroscedasticity test

Source: (Author's own research, SPSS)

The Durgin-Watson coefficient is close to 2 which shows a non-correlation situation between variables meaning a low degree of similarity.

Table no. 6 Model summary [b]: Result of the determination coefficient test (R2) and Autocorrelation test

Model.	R.	R Square.	Adjusted R Square.	Std. Error of the Estimate.	Durbin-Watson.
1	0.936	0.877	0.875	873,989	1,983

Source: (Author's own research, SPSS)

Regarding collinearity statistics, as all the tolerances are > 0.1 and the Variance Influence Factor (VIF) are < 10, the studied model is free of multicollinearity.

The R Square coefficient is 0.877 meaning that the model explains 87.7% of the net profit variance determinants and gives high confidence to the model.

Table no. 7 Multi regression analyses [a]

Model.	Unstandardized. Coefficients		Standardized. Coefficients	t	Sig.	Collinearity statistics.	
	B	Standard. Error.	Beta.			Tolerance	VIF
(Constant)	-431,927	44,208		-9.770	0.000		
TUV	-0.040	0.008	-0.142	-5.074	0.000	0.319	3.138
FA	-0.113	0.010	-0.443	-11.876	0.000	0.178	5.609
ST	-0.152	0.016	-0.443	-9.261	0.000	0.108	9.228
RE	-0.091	0.009	-0.389	-10.501	0.000	0.181	5.520
CA	0.239	0.034	0.264	7.007	0.000	0.175	5.723

Dependent variable: PNV
Source: (Author's own research, SPSS)

The regression equation resulting from table no. 7, NPV = α – 0.040 TUV - 0.113 FA – 0.152 ST – 0.091 RE + 0.239 CA, shows that the net profit decrease is in line with the turnover variation and the high value of the fixed assets (FA), stocks (ST) and receivable (RE), all relationships being statistically significant. Only the good treasury position (CA) can have a positive impact on the net profit variance meaning that higher the cash lower the net profit decrease.

5. Conclusions

The study revealed that the most exposed companies are the one with high level of stocks and receivables which involves business risks, high level of fixed assets which came with high fixed costs, high level of volatility in term of revenues which can be addresses using innovative business solutions. The higher proportion of the cash in the balance sheet can assure a higher level of resilience. So, the farmers should prioritize the cash-flow instead the profit. The risks in agriculture are too high and the situation can become critical as it was in 2020 when more important risks appeared: COVID-19 and a severe draught in Romania. The speculative behavior should be combined with a more conservative one and they should try to keep an optimal structure of the balance sheet with lower level of stocks and receivables. For doing this, they should sell earlier even the prices could be lower. Or they can use different hedging options using future contracts. For protection the level of revenues against weather risks, solutions as insurance can be used.

The companies will pass more easily through crisis if they will become more flexible in term of workplaces, investments and financial. (Barry et al, 2022) The investments in agriculture are quite important from value point of view. In general, just the land is rented partially. The trend of the recent years is to purchase all agriculture machines even they become very expensive. This will lead to an inflexibility in term of fixed costs and can have a negative effect on the financial performance during crisis periods. The financial flexibility can come using diversified financing sources. The farmers should keep good relationships with all time of creditors even the business is doing well in a certain period of time. Relaying mainly on trade credit as they consider this as the most flexible solution, can bring negative impact on the company rentability. In general, the financing cost included in the cost of goods is higher than the one obtained from traditional creditors as banks.

During crisis, the farmers should choose the development in an optimal way with reduced costs and capacity for adapting in short-time. The digital transformation is a key element for surviving during the crisis. (Abilda et al, 2024) There are microeconomic determinants which influence the performance of the companies as well. They are related to the size of the company, capital structure and human resources. The most important influencing factor is the company size. (Pantea *et al.* 2014) As the present study revealed, the company size can have a negative effect on the performance during crisis period if the risks are not anticipated properly. Big level of fixed assets, stocks and receivables under the condition of a market decrease can put big pressure on the company results as the attached costs are too high compared with the generated revenues. The resilience can come if the companies are growing in a very flexible way and they are ready to adapt very quickly to the new market conditions. For doing this, sometimes they have to make compromises in term of profitability and to invest more in the risk management processes.

For entrepreneurs it is important to control the level of fear and the excessive level of optimism. If this will affect their business behavior, they should think about the performance which will be affected for sure. (Deniz *et. al*, 2011) Under this view, the farmers should keep a level of balance between conservatorium and the level of risk that they intend to take. A middle-way solution is always better when we observe businesses performed within environments with high level of risk. In order to limit the exposure of the current assets, especially stocks and receivable, they can use methods as hedging to sell the stocks earlier or to transfer the credit risk through insurance. The profitability may be affected, but the risks will be addresses and the business visibility will be higher for all stakeholders, including creditors.

Future studies should investigate more the behavior of the farmers in term of risk and innovation and their perception in connection with the financial results of the companies.

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