

FINANCIAL PERFORMANCE AND THE BUSINESS RISK IN AGRICULTURAL SECTOR OF ROMANIA

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Abstract.

The business risk is a permanent presence in the activities carried out by the companies. The financial decisions are often based on a compromise between risk and returns. To optimise the management of the companies, it is important to know the factors that generate risk and have a certain influence on the performance. This study has as main objective the explanation of the relationship between the financial performance and the factors that can be found within the microeconomic environment of the companies and determine the risk occurrence. The research is conducted on Romanian agricultural holdings from the vegetable sector, taking into account the period 2009-2014. The research methodology is based on econometric modelling. The results of regression analysis indicate that the farm performance is largely influenced by various business risk factors, of which the most important are the financing structure (financial risk) and sales effectiveness (commercial risk). The findings helped us knowing the risk generating factors in the agricultural holdings activity, to find solutions for a proper management that leads to increased performance.

Key words: financial performance, business risk, agricultural holdings, regression model

JEL Classification: Q12, Q14

1. Introduction

The economic agents operate in an economic environment that undergoes constant change, and the available information is often insufficient. Under these conditions, their decisional behaviour involves a certain level of risk and affects the quality of the entire business activity and results. Even the profit of the economic agents can be regarded as a consequence of the risk, being obtained due to a better prediction of the future in comparison with other entrepreneurs [Heyne, 1991].

In a general sense, the risk is the deviation of the obtained result compared to the expected result, as a consequence of the action of various environmental factors [Bromiley, 1991], and must be treated as an objective phenomenon found in every business. The risk is a multidimensional concept, which can not be reduced to a single element or indicator expressed by a figure. It differs depending on the actual conditions of the business and the entrepreneur's attitude towards the risk. The business risk determines the modality to fulfil the targeted objectives, as well as the magnitude of the favourable effects recorded inside and outside the company. In agriculture, natural hazards are often manifested, being able to decisively affect the agricultural holdings activity. The variables characterising the climate risk in agriculture are not part of the farm accountancy data (Kemény et al, 2012).

For agricultural holdings, the financial performance provides a comprehensive picture of the financial health. It depends on the capacity of an agricultural holding to control various risk forms and to properly manage the revenue and expenses streams, in order to obtain advantageous effects for stakeholders. Therefore, knowing the way in which the risk manifestation is influencing the performance of the agricultural holdings has a particular importance for the complete and correct reasoning of the management decisions. This information is useful to all categories of stakeholders, who shape their behaviour based on the performance/risk ratio.

Knowing the microeconomic environment variables and the mechanisms by which they act is the way by which the agricultural holdings can solve their business risk management issues. The appropriate risk-taking and management ensure performance increase in the economic activity and satisfy the stakeholders' interests. The risk management involves the control of some aspects related to liquidity and solvency, efficiency of activity and operation based on profitability.

The research is mainly focused on highlighting how the interaction between performance and risk occurs within the agricultural holdings in Romania. For entrepreneurs, the Return on Invested Capital expresses synthetically the expected performance after making the decision to take some risk and invest in a business.

The research hypothesis is that the financial performance of agricultural holdings, expressed by the Return on Invested Capital, is influenced by a number of variables, such as: Return on Sales; Sales Variability; Debt to Asset Ratio; Working Capital to Expenses Ratio; and Fixed Assets Turnover Ratio. For analysis, we used a linear regression model to test the intensity of correlation between the specified variables.

The paper was organised as follows: the next section presents a review of literature about the elements which have a decisive impact on performance, in terms of various related forms of risk; the third section presents the methodology of research and the analysis model; the fourth section highlights the results and discussions about the performance impact factors; the last section presents the findings of the conducted survey.

2. Literature review

In the literature, there are many research concerns aiming the performance. However, the notion of performance has not have yet a widely accepted definition, and it can be only explained by various concepts, criteria or indicators.

In the economic and financial area, it is considered that the concept of performance corresponds simultaneously to at least two of these meanings: success, as action result, and action [Jianu, 2007]. Starting from this consideration, it can be said that an economic entity is efficient when the activities carried out to complete its mission (action) create added value (action result) and favourable effects for stakeholders (success).

In Romania, the current regulations in the field of finance and accounting propose assessing the performance of economic entities by profitability. Also, the aspects regarding the financial position and cash flows of the economic entities are of interest in assessing the performance. The content of annual financial reports aims the performance assessment based on revenues and expenditures, and these are the basic elements necessary to establish the results and profitability.

The performance assessment is considered by many authors a particularly useful method to determine the current financial situation compared with the competitors' situation and their own expectations [Tehrani et al, 2012]. Any approach for performance assessment and identification of the impact factors is targeting the managerial attention and efforts towards the key elements that must be carefully controlled in the future to minimise the related risks [Gallizo and Salvador, 2003].

There are various economic micro-environment factors affecting the performance that can be correlated with the risk events. The studies show that there is a contradiction between the magnitude of profits and the liquid assets of a company [Tehrani et al. 2012, Deloof, 2003, Eljely, 2004]. The existence of a large volume of liquid assets, although conveys positive signals to the creditors on the ability to pay, shows also an insufficient productive use of the company's capital. By continuously monitoring the correlation between the funding needs and financial resources, one must ensure the optimisation of the working capital and maximisation of results.

Another important factor that has a major impact on the performance of a company is the technical-productive potential given by the tangible assets and the efficiency of using it [Rus et al., 2016]. The competitiveness advantage of the modern companies is increasingly depending on the size of investments in intangible assets [Purcărea and Stancu, 2008].

Other important factors, upon which depend the success or failure of a business, are: financial structure [Akintoye, 2008], financial leverage [Ryan, 2008], the managers' behaviour and the risk taken [Bromiley, 1991].

The variability of sales and marketing activities in general are also seen as key factors that can influence the process of value creation, the size of revenues, the profitability and the performance of companies [Lane, 2011].

The research presented in this paper demonstrates the influence of economic factors on the economic performance and, therefore, the risk-taking experienced by entrepreneurs. They refer to some aspects of financial balance (liquidity, solvency), variability of sales, efficiency of using the assets, and profitability.

3. Data and methodology

The dataset used in this study comes from the annual financial statements of the companies operating in the agricultural vegetable sector in Romania, based on the following NACE code: 0111 - Growing of cereals (except rice), leguminous crops and oil seeds. The data includes financial indicators for the period 2009-2014, for a total of 57 companies. The companies included in the dataset had minimum 50 employees for at least one year of that period, along with comprehensive information available for the entire time-frame.

The study is mainly focused on identifying the key variables influencing the financial performance in terms of business risk in agricultural companies.

The endogenous and exogenous variables referring to the concepts of performance and risk were selected from the financial indicators used in practice for monitoring the financial health of the companies, and are closely correlated with the analyses found in the related literature. These indicators are used to evaluate the business risk by financial institutions operating in this field, and are grouped into several categories, as follows: liquidity indicators, solvency indicators, efficiency indicators and profitability indicators.

From the multiple ways to express the performance, we selected the ROIC indicator, (i.e. *Return on Invested Capital*) to measure the financial performance. It shows the gains we get from using either the equity or the borrowed capital. A higher level of the profitability rate suggests that the companies have a better financial capacity to reward the capital providers and, therefore, a better performance. Its variation is the form by which the business risk is materialised [Brigham and Ehrhardt, 2010]. The calculation method is:

$$ROIC = (Net\ income - Dividends) / (Total\ invested\ capital) \quad (1)$$

The fact that the ROIC indicator is determined as function of all the financial resources invested in the business (equity and all interest-bearing debts) makes it being a more accurate modality to express the financial performance, and hence more desirable for the capital suppliers (shareholders) and debt holders [Nuno, 2014]. This aspect is important for the agricultural companies and in particular for the ones operating within the vegetable sector, where the particularities of the activity lead to operation with a relatively high level of debts.

The ROS variable, i.e. *Return on Sales*, is used to measure the company's operational efficiency and shows the company's ability to make profit from its commercial operations. It also indicates the potential dividends, reinvestment potential and the company's ability to repay the debts. The formula for calculation is [Farris et al, 2010]:

$$ROS = (Net\ income) / (Sales\ revenue) \quad (2)$$

ROS varies from one economic sector to another and is useful for assessing the *internal efficiency performance* within the same industry. A company that has a high commercial profitability is able to better cover its costs, and thus contributes to increased financial performance.

One of the most important factors related to business risk is the *sales variability* [Brigham and Ehrhardt, 2010]. This is a profitability indicator which decisively influences the economic performance. It expresses the business activity risk and can be quantified using an indicator that measures the sales performance variability, called *SVAR*. The sales variability indicator expresses the individual relative deviations of ROS from the average of the analysed companies (*AvROS*), and is calculated as follows:

$$SVAR_i = (ROS_i - AvROS) / AvROS \quad (3)$$

Another risk measure that has a direct impact on the financial performance of the companies is the indicator *DAR*, i.e. *Debt to Asset Ratio*. This ratio is associated to the financial risk, being a barometer of the state of solvency. This indicator is also known as the *leverage ratio*. The increase of indebtedness has a negative impact on autonomy and financial security, increasing the solvency risk. It also means increased financial costs, which lead to lower profitability. However, the situation may be acceptable if the company has an effective activity and a high return on assets.

$$DAR = Total Liabilities / Total Assets \quad (4)$$

It is possible to assess the liquid assets owned by a company using a more general indicator to express the liquidity, i.e. *WCE* (*Working Capital to Expenses Ratio*), calculated as follows:

$$WCE = Working Capital / Total Expenses \quad (5)$$

This indicator enables assessing the extent to which the working capital is adequate for the company's expenses, being therefore associated to the liquidity risk. Although the increase in *WCE* proves an increase in liquidity and a better ability to cope the day-to-day operations, it is expected that the increase of this indicator to lead to capital assets. The working capital has a stronger dynamics than the total expenses, aspect which can have a negative impact on the financial performance [Eljelly, 2004]. It is believed that the liquidity indicators are able to predict risky situations and economic crisis in the companies' microenvironment [Shulman and Cox, 1985].

The *FAT* indicator, i.e. *Fixed Assets Turnover Ratio*, expresses the operating performance and the risk of misuse of the operational capacity, whose use does not bring the expected revenue to the company. The high levels show a high efficiency of using the technical-productive capital of the company.

$$FAT = Sales revenue / Fixed assets \quad (6)$$

The *FAT* indicator is important for analysing the efficiency of the capital investment management. In the model proposed for analysis, this indicator will be used in its reverse form, i.e. *Fixed Assets to Sales* ($FAS = 1/FAT$). In this case also, it proves to be a performance indicator which shows the magnitude of fixed assets associated with the earned income. The increase of *FAS* shows that the dynamics of fixed assets runs faster than the dynamics of turnover. This aspect means a decrease in the efficiency of the capital investment management and, therefore, a decline in the financial performance should be expected.

The descriptive statistics of the variables selected to be used in the model is shown in Table 1.

Table 1. Descriptive statistics of the variables

| Variables | Mean | Maximum | Minimum | St. Dev. |
|---------------------------------|--------|---------|---------|----------|
| ROIC Return on Invested Capital | 0.059 | 0.471 | -0.428 | 0.104 |
| WCE Working Capital | -0.286 | 2.053 | -8.325 | 0.798 |

| | | | | |
|---------------------------|---------|--------|---------|-------|
| to Expenses | | | | |
| DAR Debt Asset Ratio | 0.594 | 1.637 | 0.023 | 0.274 |
| SVAR Sales variability | -0.0002 | 18.076 | -21.955 | 3.618 |
| FAS Fixed Assets to Sales | 1.09 | 15.885 | 0.001 | 1.696 |

Source: Own calculation, based on financial statements

Between 2009 and 2014, the group of analysed agricultural holdings operating in the vegetable sector had an average level of financial return of about 6%, but significant profitability differences among the companies have been found.

In all the studied agricultural holdings, the liquidity situation was not favourable. The negative value of the indicator called Working Capital to Expenses shows that the agricultural companies generally operate with a negative Working capital. This imbalance of the permanent business financing comes from the existence of higher funding needs than their permanently available resources, which shows either a lack of liquidity or an inadequate funding of the current activity.

The average leverage ratio of the companies is quite high (59.4%), being close to the maximum allowable (66%). The relatively low level of solvency may jeopardize the future performance by conveying negative signals regarding the reduced ability to meet the payment obligations.

The average *Sales variability* indicator for the analysed agricultural holdings is low, but with significant variations at the individual levels, from a maximum of 18% to a minimum of -22%. This situation suggests that there are big differences between the returns on sales, so the risk is actually present in the economic life of each company.

The *Fixed Assets to Sales* indicator has a value of 1.09, which shows a rather low efficiency of using the fixed assets. The long length of fixed assets rotation, of 398 days, is related to the specifics of vegetable farming, which has long production cycles, but can lead to negative implications on the farm performance.

The analysis method applied in this study to establish the determinants of financial performance in terms of risk is the *econometric modelling* based on panel data regression analysis of cross-sectional and time series data. The general form of the relationship used to study the financial performance is:

$$Y_{it} = a + \sum_1^n b_i X_{it} + e \quad (7)$$

where a is the intercept, b_i represents the regression coefficients, X_{it} = the independent variables influencing the performance, e is the error term, i and t are cross-section dimensions and period of time

The relationship between performance, expressed by *Return on Invested Capital*, and a number of variables that introduce various possibilities of risk occurrence and manifestation, has the following form:

$$ROIC_{it} = a + b_1 WCE_{it} + b_2 DAR_{it} + b_3 SVAR_{it} + b_4 FAS_{it} + e \quad (8)$$

where: ROIC represents *Return on Invested Capital*; WCE is the *Working Capital to Expenses*; DAR is *Debt to Assets Ratio*; SVAR is the relative deviation of *Return on Sales* from the mean (sales variability); FAS is the *Fixed Assets to Sales*.

4. Results and discussions

The preliminary analysis of the model quality, used for assessing the group of agricultural holdings (57) operating in the vegetable sector in the period 2009-2014, revealed the existence of residues whose variations are not equal. The specific tests carried out (Breusch-Pagan-Godfrey) showed that the dataset is affected by heteroskedasticity. To solve this issue, the conditional variance was finally assessed by using a GARCH (Generalized AutoRegressive Conditional Heteroscedastic) model. The GARCH models considers that the variances of the error term must be modelled as well, and thus the estimated coefficients become more precise [Engle, 2001]

The obtained estimators are shown in Table 2.

Table 2. Regression results of business risk on financial performance

| Variables | Dependent variable: Return on Invested Capital | | | |
|---------------------------------|------------------------------------------------|------------|-------------|--------|
| | Coefficients | Std. Error | z-Statistic | Prob. |
| WCE Working Capital to Expenses | -0.011011 | 0.004026 | -2.914011 | 0.0014 |
| DAR Debt to Assets Ratio | -0.087091 | 0.012239 | -6.723624 | 0.0000 |
| SVAR Sales variability | 0.025060 | 0.000559 | 44.04126 | 0.0000 |
| FAS Fixed Assets to Sales | -0.010635 | 0.001175 | -9.741653 | 0.0000 |
| C | 0.111296 | 0.004838 | 23.00371 | 0.0000 |
| Adj.R ² | 0.641258 | | | |

Source: own calculation

The tests carried out to verify the quality of the residuals term indicate that the model is specified correctly. It has also a great explanatory power. The value of *adjusted R-squared* indicates that, at the studied agricultural holdings, the variation in performance is determined by the independent variables in a proportion of 64.1%. This is relevant for studying the relationship between the risk factors and the manifestation of financial performance.

The regression results show that, for the analysed group, the variables that can be associated with the business risk had an influence on the financial performance, which corresponds to the economic theory that there is a positive correlation between risk and return.

In case of agricultural holdings, the DAR indicator (Debt to Assets Ratio) exerts a significant, but negative influence (-8.7%). The reverse relationship between performance and leverage pointed out that the agricultural holdings had a high share of debts in total financial resources, and that the financing structure adopted by them was not advantageous. The indebtedness was a risk factor and did not lead to economic efficiency, so that the overall return on equity (ROIC) decreased.

The negative relationship between the liquidity indicator WCE (Working Capital to Expenses) and performance suggests that the agricultural holdings have been affected by the liquidity risk. Their activities generated insufficient cash flows to cover the expenses. One reason seems to be the high level of indebtedness. This aspect is consistent with the result of other studies showing that the debt ratio affects adversely the working capital and liquidity of a company [Chiou and Li, 2006]. On the basis of this factor, the performance was reduced by -1.1%.

The indicator FAS (Fixed Assets to Sales) had also a negative impact on performance. The low efficiency of using the Fixed Assets is primarily explained by the seasonality of production and, implicitly, the possibility to obtain income. On account of this factor, the performance was reduced by approximately -1%.

The regression results show that the SVAR factor (sales variability), quantifying the business risk, has a positive and statistically significant influence on the financial performance. Thus, the performance of companies increased by 2.5% thanked to the effectiveness of the marketing activity.

The intercept coefficient is statistically significant; it points out that the performance is also determined by other factors not included in the model, i.e. external environment factors.

5. Conclusions

The performance of agricultural holdings is the fundamental objective of investors and other categories of stakeholders. The achievement of expected performance depends on knowing and managing properly the factors that influence it, as well as taking correctly any risk involved.

In this paper, a significant relationship between the financial performance and a number of internal risk-related variables has been highlighted, taking into account the Romanian agricultural holdings. The results of the regression analysis are underlying the formulation of action plans for increasing the economic performance.

One possibility to improve the economic and financial situation of the agricultural holdings is to improve the working capital management. To do this, the companies should stimulate the investments in the basic resources required for operation, in order to achieve significant gains from the economic development, so as to considerably increase their funding sources (the working capital must be positive). This recommendation is consistent with the findings of other studies [Appuhami, 2008].

The leverage expresses a certain structure of the capital used for financing the company's activity, but the favourable effects occur only if the borrowed resources are used highly effective,. Otherwise, the excessive indebtedness increases the financing costs, leading to more risky structures and lower gains, case identified within the studied group. Therefore, a solution to increase the performance of the agricultural holdings should aim at changing the structure of the funding mix, i.e. focus on own funding.

The inverse relationship between liquidity and performance, evidenced by the analysis results, indicates that the agricultural holdings should aim for a compromise (trade-off) between the values of the two indicators. By maintaining a too high level of liquid assets, the agricultural holdings prove to have not enough active investment behaviour leading to increased production potential. This mode of financial management of operating assets affects the long term gaining chances and reduces the performance. The negative relationship between liquidity and performance has been also confirmed by other studies [Raheman and Nasr, 2007, Eljelly, 2004, Narware, 2004].

Another way to increase the performance is the adequate management of the fixed capital which is currently used inefficiently. For this, the implementation of measures able to improve the extensively and intensively use of agricultural machinery must be stimulated whilst improving the marketing techniques to expand sales. The sales effectiveness is another factor that positively influences the performance, which is consistent with the findings of other researchers [Vătavu, 2015].

The study conducted in the vegetable sector of Romanian agriculture highlighted specific aspects about the internal risk factors facing the agricultural holdings. During operation, the risk is a continuous presence affecting their financial security [Burja and Burja, 2013]. The results can be seen as the basis for improving the financial management, in order to increase the performance of agricultural holdings.

6. References

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