DETERMINANTS OF PROFITABILITY OF FOOD ENTERPRISES FROM THE TERRITORY OF THE REPUBLIC OF SERBIA

Stevan Tomašević[1], Mirela Momčilović[2], Nada Milenković[3], Dragana Milić [4]
Corresponding author E-mail: stevan.tomasevic@vps.ns.ac.rs

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ABSTRACT

This paper aims to identify, evaluate, and analyze determinants of the profitability of food enterprises from the Republic of Serbia. The paper determines the nature of the relationship between defined determinants and profitability by applying a panel regression model on a sample of 189 small, medium, and large food enterprises from Serbia in the period from 2011 to 2021. The analysis results showed that the profitability of food enterprises is positively influenced by liquidity and sales growth rate. On the other hand, the indebtedness, size, and materiality of assets have a negative impact on the profitability of food enterprises. Of all analyzed variables, only liquidity does not affect profitability at a statistically significant level. The results of the analysis should be added to the fact that smaller food enterprises, with a lower degree of indebtedness and a smaller share of fixed in total assets, achieve a higher degree of profitability.

Introduction

A company's profitability implies the ability to achieve maximum profit in relation to invested assets. If the company does not achieve a minimally acceptable profit level, it can be considered that it is not using its funds in a sufficiently efficient manner. However, the funds are necessary for the company to perform activities, innovate business, implement technological changes, etc.

1   Stevan Tomašević, PhD, Lecturer, Novi Sad School of Business, Vladimira Perića Valtera 4, Novi Sad, Republic of Serbia, Phone: +381692009155, E-mail: stevan.tomasevic@vps.ns.ac.rs, ORCID ID (https://orcid.org/0000-0003-3819-9150)

2   Mirela Momčilović, PhD, Lecturer, Novi Sad School of Business, Vladimira Perića Valtera 4, Novi Sad, Republic of Serbia, Phone: +38163280010, E-mail: bizniscentar@gmail.com, ORCID ID (https://orcid.org/0000-0001-5752-6992)

3   Nada Milenković, PhD, Associate Professor, University of Novi Sad, Faculty of Economics in Subotica, Subotica, Republic of Serbia, Phone: +38124628068, E-mail: nada.milenkovic@ef.uns.ac.rs, ORCID ID (https://orcid.org/0000-0001-9810-3021)

4   Dragana Milić, PhD, Professor of Applied Study, Novi Sad School of Business, Vladimira Perića Valtera 4, Novi Sad, Republic of Serbia, Phone: +381638215979, E-mail: dragana.ikonic@vps.ns.ac.rs, ORCID ID (https://orcid.org/0000-0001-8250-0479)

In today's dynamic business environment, understanding the factors that affect a company's profitability is essential to maintaining competitiveness and achieving long-term success. This is particularly important in the food industry, where challenges such as changing market demands, regulatory requirements, and the complexity of resource management can significantly affect financial performance. In defining the determinants of profitability, Tomašević (2020) explains that it is impossible to consider all the determinants of profitability and that the interpretation of such analysis results would be questionable due to complexity. Also, too small a number of determinants cannot be included because the formed model most likely ignores the effect of other determinants with greater influence, and the results of such research are inadequate. Thus, profitability determinants should be selected by the specificity of the enterprise, industry, and geographical area of business and the researcher's ability to evaluate.

This research stems from a clear motivation to examine and understand the profitability of food enterprises in the Republic of Serbia. The motivation lies in recognizing the importance of maintaining competitiveness, achieving long-term success in a dynamic business environment, and identifying shortcomings in existing knowledge. In this context, the key "gaps" that this study aims to fill are the lack of detailed understanding of the factors influencing the profitability of food enterprises in the Republic of Serbia. While there is extensive literature on factors affecting profitability in general, little attention has been paid to the specific characteristics and challenges of the Serbian food industry. Therefore, this study aims to fill those knowledge gaps and explore innovative approaches to analyze the determinants of the profitability of food enterprises. So, this paper aims to identify, evaluate, and analyze critical determinants affecting the profitability of Serbia's food enterprises. In this regard, the relationship between the identified determinants and the profitability of food enterprises will be determined, which will be an adequate basis for improving, growing, and developing food enterprises in Serbia.

Through in-depth analysis of factors such as liquidity, indebtedness, firm size, sales growth, and investment management, the research seeks to provide new insights and contribute to the theoretical understanding of financial performance in the food industry.

Literature review

Various studies have analyzed the determinants of profitability of the agri-food sector in recent times (Chaddad, & Mondelli, 2013; Hirsch et al., 2014; Pindado Tapia, & Alarcón Lorenzo, 2015; Mijić et al., 2016; Nuševa et al., 2017; Andrašić et al., 2018; Dakić & Mijić, 2018; Grau, & Reig, 2018; Tomašević, 2020).

Different researchers examine the influence of internal and external factors on the profitability of the company (Abey, & Velmurugan 2018; Milošević-Avdalović, 2018; Dakić, & Mijić, 2018; Nanda, & Panda, 2018). Some papers examine only internal factors of profitability that are specific to the company (e.g. firm size, growth, age, indebtedness), while others investigate the influence of external factors (e.g. business

and economic environment, market). The third group of papers examines how internal and external factors impact a company's profitability.

Bhayani (2010) uses both internal and external variables, such as the size and growth of the company, liquidity, and inflation rate, to determine a company's profitability. By trying to identify the variables that best assess the profitability of enterprises in cement production in India, he found that liquidity, enterprise growth, and inflation rates played a crucial role in determining profitability. Pervan and Višić (2012), when analyzing the relationship between firm size and profitability, include other internal and external variables in regression. They concluded that the firm size has a positive and weak statistically significant impact on profitability, the company's indebtedness records a negative statistically significant impact on profitability, and liquidity was not an important variable in explaining the set model, i.e., profitability.

Nuševa, Mijić, and Jakšić (2017) found the existence of a number of independent variables with an insignificant statistical impact on the profitability of the company (such as liquidity, indebtedness, company size, and sales growth). On the other hand, a positive statistical impact on the company's profitability had an inventory turnover, and a negative statistical impact had a degree of concentration of coffee processors in Serbia.

Pathirawasam and Knápková (2013) explored the relationship between profitability and different variables of enterprises in the Czech Republic. They concluded that size and sales growth have a statistically positive relationship with profitability, while indebtedness, inventory turnover, and capitalization rate have a negative and statistically significant impact on profitability. However, liquidity and company age have a statistically insignificant and positive relationship with profitability.

By examining the impact of factors on the profitability of small and large agricultural enterprises, Andrašić et al. (2018) have formed a model in which they determine the influence of company size, liquidity, debt, insurance, and export on the dependent variable. The result showed a significant positive impact of independent variables on the profitability of medium and large agricultural enterprises in the area of Vojvodina.

The article by Denčić-Mihajlov (2014) found that larger and more liquid companies have a higher level of profitability. Statistically significant and positive contributions are noted in the size of the company, liquidity, growth in sales, and turnover of assets, while negative contributions are noted in the ownership of the company. An insignificant contribution is noted in the indebtedness of the company. The analysis of the real sector in Serbia during the recession found that there is a need for additional ways to achieve profitability and improve its performance. Also, the recession period in Romania was examined by Vătava (2014), whose regression results show that profitable companies operate with limited loans. A statistically significant, positive contribution to profitability is observed with the variable of company size, while a negative contribution is noted in indebtedness, materiality, liquidity, and inflation. Similar research results were presented by Tomašević (2020), who concludes that liquidity, indebtedness, gross domestic product, and inflation have a negative and statistically significant contribution

to the profitability of food companies, while only the size of the company makes a positive contribution to the profitability.

To determine which internal factors have a significant impact on the profitability of the meat processing industry, Mijić, Zekić, and Jakšić (2016) showed that companies with a high liquidity ratio and sales growth achieve a higher degree of profitability. On the other hand, they found that high indebtedness has a negative impact on profitability. Also, their results show that the size of the enterprise does not affect the profitability of the meat processing industry.

Examining the determinants of the profitability of Greek enterprises, Asimakopoulos, Samitas, and Papadogonas (2009) stated that the size of the enterprise, working capital, and the growth of sales and investments positively impact profitability. Food and beverage companies in Indonesia are the most resilient to crisis conditions compared to other sectors, and Fatmawati (2019) is trying to uncover the effect of sales growth and working capital, as well as liquidity, on the profitability of food and beverage companies. He concluded that liquidity has a statistically insignificant positive relationship with profitability, as Wibowo and Wartini (2012) confirmed. For Indonesia, analyzing the profitability of production companies, Tarihoran and Endri (2021) examined the impact of independent variables, such as liquidity, working capital, company size, growth, world oil prices, and exchange rate, on the dependent variable, i.e., profitability.

A number of research papers use size, age, and market share as factors that determine company's profitability (Chaddad, & Mondelli, 2013; Hirsch et al., 2014; Pindado Tapia, & Alarcón Lorenzo, 2015; Grau, & Reig, 2018; Yameen, Farhan, & Tabash 2019). Size, as an internal determinant of the company's profitability, is often the subject of various studies, and in addition to the aforementioned authors, numerous others have pointed out its importance (Pathirawasam, & Knápková, 2013; Denčić-Mihajlov, 2014; Vătavu, 2014; Andrašić et al., 2018; Tomašević, Jović, & Vlaović Begović, 2019).

Ratajczak, Szutowski and Nowicki (2024) indicate that the literature often emphasizes the influence of liquidity as a key factor that determines the short-term performance of companies. In this context, numerous authors investigate the impact of liquidity on the profitability. Some authors have shown the existence of a positive relationship between liquidity and profitability (Nunes et al., 2012; Denčić-Mihajlov, 2014; Andrašić et al, 2018), others that there is no statistically significant relationship between these variables (Pervan, & Višić, 2012; Pathirawasam, & Knápková, 2013; Kurniawati, & Apollo 2018), while the third group of authors indicates that there is a negative relationship between liquidity and profitability (Eljelly, 2004; Vătavu, 2014).

Hawawini et al. (2003) indicate that the performance of the company is decisively influenced by internal factors, as a result of which this study will examine the internal determinants of the company's profitability.

Based on the examined theory and literature research model is formed (Figure 1).

Figure 1. Research Model
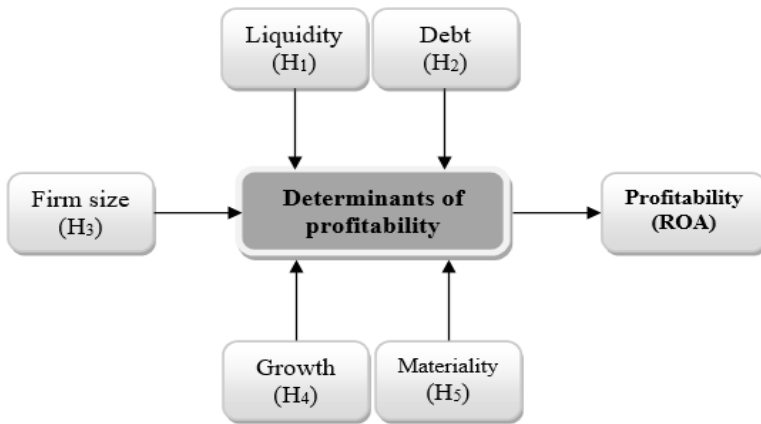
Source: Authors' illustration

The model serves as the backbone for the development of the research hypothesis that will be tested in this paper:

H_1: Better liquidity of food enterprises positively impacts their profitability.

H_2: The higher level of food enterprises' indebtedness negatively impacts their profitability.

H_3: The size of food enterprises positively impacts their profitability.

H_4: The higher level of food enterprises' sales growth rate positively impacts their profitability.

H_5: The higher share of fixed assets in the total assets of food enterprises positively impacts their profitability.

Materials and methods

This research was conducted on 282 small, medium, and large food enterprises from the Republic of Serbia. The main activity of the sampled enterprises is the production of food products, which includes the processing of agricultural, forestry, and fishery products for obtaining food for humans or animals, as well as the production of various semi-finished products (C – processing industry, area 010 - production of food products). All sample enterprises were active from 2011 to 2021 and have published regular financial statements. The sample was formed based on data collected from the "Amadeus" database, which includes data from the balance sheet and income statement for the observed period. Extreme values and missing data were removed from the sample. The final sample based on which the research was carried out consists of 189 enterprises and refers to the research period of 11 years, i.e., there are 2.079 observations.

A panel regression model was used to identify the main determinants of the profitability of food enterprises from Serbia. The model's dependent variable is the rate of return on assets (ROA), while the independent variables are the internal determinant of profitability are listed in Table 1.

Table 1. Research variables

Variable	Indicator	Definition
ROA	Profitability	Net income/Total assets
LIQ	Liquidity	Current assets/Current liabilities
DEBT	Indebtedness	Total liabilities/Total assets
SIZE	Firm size	Natural logarithm of the value of the total assets
GROWTH	Sales growth rate	(Sales of current period – Sales of previous period) / Sales of previous period
FIXED	Materiality	Fixed assets/Total assets

Source: Authors' illustration

For empirical testing of the association between profitability and selected independent variables, the following model was used:

$$ROA_{it} = \beta_0 + \beta_1 LIQ_{it} + \beta_2 DEBT_{it} + \beta_3 SIZE_{it} + \beta_4 GROWTH_{it} + \beta_5 FIXED_{it} + \varepsilon_{it}$$

where: ROA_{it} – the value of the rate of return on assets of the i enterprise from the sample for the year t; β_0, β_1,..., β_5 – unknown regression parameters; LIQ_{it} – the value of the current ratio of the i enterprise for the year t; $DEBT_{it}$ – the value of the total debt ratio of the i enterprise for the year t; $SIZE_{it}$ – the value of the natural logarithm of the value of total assets of the i enterprise for the year t; $GROWTH_{it}$ – the value of the growth rate of sales of the i enterprise for the year t; $FIXED_{it}$ – the value of the fixed-to-total asset ratio of the i enterprise for the year t; ε_{it} – a random error with a normal distribution.

To analyze the profitability determinants of food enterprises in Serbia, the model of ordinary least squares, the model with a fixed effect, and the model with a stochastic (random) effect were used. The selection of the most appropriate models was based on the F, Breusch-Pagan LM, and Hausman tests. The VIF test was used to test the presence of multicollinearity between independent variables of the regression models.

Results

The descriptive statistics of all variables of the analyzed model are shown in Table 2.

The average value of the rate of return on the assets (ROA) of the sampled enterprises was 6.50% in the analyzed period. Suppose the obtained value is compared with the expected reference value of the rate of return on the assets, i.e., the theoretically recommended rate of 10%. In that case, the analyzed enterprises in the observed period have a relatively low level of profitability and did not achieve a satisfactory rate of return on the assets. The rates of return on the assets (ROA) of the enterprises from the sample vary from -64.03% to 71.20%. Due to the significant level of variation between

the values of the rates of return of individual enterprises from the sample, their standard deviation is relatively high and amounts to 9.55.

Table 2. Descriptive statistics of Serbian food enterprises

Variable	Number of observations	Mean	Standard deviation	Minimum	Maximum
ROA	2,079	6.5004	9.5539	-64.0300	71.2000
LIQ	2,079	1.6893	1.2655	0.0800	21.4100
DEBT	2,079	52.9925	21.2429	2.5600	112.7800
SIZE	2,079	13.2916	1.6160	8.0892	17.8831
GROWTH	2,079	0.1388	0.4911	-0.8028	10.9770
FIXED	2,079	0.4790	0.1868	0.0119	0.9679

Source: Authors' calculations based on STATA 15

In the observed period, the average value of the current ratio of food enterprises from the sample was 1.69, which is below the theoretically recommended value of 2.00 and indicates that the average current ratio of the sampled enterprises is slightly below the satisfactory level. The current ratio of the analyzed enterprises varied from 0.08 to 21.41, as a result of which the value of the standard deviation of this ratio was relatively low (1.27).

The average value of the total debt ratio of food enterprises was 0.5299, indicating that an average of 52.99% of the asset value of the analyzed enterprises was financed from debt, while the remaining 47.01% was financed from equity. The result is approximately in line with the traditional financing rule, according to which the acceptable debt-equity ratio of the enterprises is 1:1.

Based on the conducted analysis, it can be concluded that the firm size, measured by the natural logarithm of the value of the company's assets, has moderate variability, i.e., that the enterprises from the sample in most cases have assets with a value that is at the level of the average assets of the examined enterprises from the sample.

The average value of the sales growth rate from the sampled food enterprises is 13.81%, which indicates that enterprises, on average, achieved growth of the sales compared to the previous year. The growth rate varied from -8.03% to 10.98%. The negative value of the sales growth rate of some sample enterprises shows that these enterprises recorded a decrease in sales compared to the previous period. The standard deviation of the growth rate is high and amounts 49.11, indicating a significant deviation in the sales growth rate of individual enterprises from the average sales growth rate.

The average value of the fixed-to-total assets ratio was 47.90%, indicating that fixed assets, on average, accounted for 47.90% of the total assets of the sampled food enterprises. The ratio value varied from 1.19% to 96.79%, depending on the examined enterprise.

The correlation matrix (Table 3) shows the Pearson correlation coefficients between ROA and the selected independent variables. The correlation results show a positive relationship between ROA on one side and the current ratio, sales growth rate, and fixed-to-total asset ratio on the other. There is a negative link between ROA and total debt ratio and between ROA and the size of sample enterprises.

Table 3. Pearson correlation analysis of profitability and its determinants

	ROA	LIQ	DEBT	SIZE	GROWTH	FIXED
ROA	1.0000					
LIQ	0.1598	1.0000				
DEBT	-0.2867	-0.5363	1.0000			
SIZE	-0.1883	0.1219	-0.0716	1.0000		
GROWTH	0.1183	-0.0663	0.0557	-0.1157	1.0000	
FIXED	0.0167	-0.3247	-0.0498	-0.0556	0.0227	1.0000

Source: Authors' calculation based on STATA 15

From Table 4, it can be seen that the VIF test results confirm no problem with multicollinearity because none of independent variables used has a VIF value greater than the theoretical reference value of 5. The results indicate that all independent variables can be used in the regression panel model.

Table 4. Results of the multicollinearity test

Variable	VIF	1/VIF
LIQ	1.71	0.5841
DEBT	1.52	0.6558
SIZE	1.03	0.9731
GROWTH	1.02	0.9833
FIXED	1.21	0.8238

Source: Authors' calculation based on STATA 15

In the next step of the analysis, an adequate regression model was selected using the selected tests, the results of which can be seen in Table 5.

Table 5. Results of tests for the selection of an adequate regression model

Test	Test value	Probability
F test	$F_{(188, 1885)}=11.73$	$p(F)=0.0000<\alpha=0.05$
Breusch-Pagan LM test	$\chi^2_{(01)}=2{,}346.50$	$p(\chi^2)=0.0000<\alpha=0.05$
Hausman test	$\chi^2_{(5)}=25.55$	$p(\chi^2)=0.0001<\alpha=0.05$

Source: Authors' calculation based on STATA 15

The F-test value showed that there are individual effects, as a result of which it can be concluded that the fixed effects model (FE) is more adequate than the ordinary least squares model (OLS). The Breusch-Pagan test also showed individual effects, suggesting that a random effects model (RE) is more suitable for use than the ordinary least squares model. Therefore, both tests confirmed the statistical significance of individual effects, implying that the application of the ordinary least squares model is inadequate within the conducted research. Finally, by applying the Hausmann test when determining the nature of individual effects, it can be concluded that in this study, a fixed effects model is more suitable for application compared to a random effects model, and therefore it will be used for further analysis and evaluation of regression coefficients with independent variables.

Table 6. The results of the fixed-effect model (FE)

ROA	Coefficients	Standard Error	t Stat	p>|t|
LIQ	0.0381	0.1762	0.22	0.829
DEBT	-0.8696	0.0143	-13.08	**0.000**
SIZE	-1.0918	0.3378	-3.23	**0.001**
GROWTH	2.2855	0.3069	7.45	**0.000**
FIXED	-11.6021	1.5973	-7.26	**0.000**
Const	36.0959	4.4976	8.03	**0.000**
F(5,1885)	65.62			
Prob>F	0.0000			
R-Ad (overall)	0.1095			

Source: Authors' calculation based on STATA 15

The results of the panel regression model with fixed effects are presented in Table 6, and based on them, it can be concluded that the factors of indebtedness, firm size, sales growth rate, and materiality of assets have a significant impact on the profitability of food enterprises from the sample in the analyzed period. On the other hand, the results show that in the observed period, the liquidity of food enterprises is not associated with profitability at a statistically significant level. From the previous table, it can also be seen that liquidity and sales growth rate have a positive, while indebtedness, firm size, and materiality of assets have a negative impact on the profitability of food enterprises.

Discussions

Previous studies on the relationship between profitability and liquidity produced varying results and conclusions. On the one hand, multiple studies have found that liquid companies are often more profitable. On the other side, some argue that too much liquidity might harm a company's profitability. Specifically, it is considered that increasing the enterprise's liquidity increases its profitability, but only to a certain extent. After this level, any further increase in liquidity reduces profitability because the company does not invest surplus funds. This research showed a positive relationship between liquidity and profitability of food enterprises from the sample, and the fact that this relationship is not at a statistically significant level (p =0.829>α=0.05). If the other variables in the model remain constant, it is possible to conclude that increasing enterprise liquidity by one ratio point does not result in a significant gain in profitability for Serbian food enterprises (Table 6). The results are in line with the results of studies done by other authors who have engaged in similar research (Nuševa, Mijić, & Jakšić, 2017; Dakić, & Mijić, 2018; Fatmawati, 2019), as a result of which the first hypothesis can be confirmed.

The majority of research studies on the relationship between profitability and indebtedness have found that companies with more debt are less profitable than those with less debt. Accordingly, this research showed a negative and statistically significant relationship between the indebtedness and profitability of food enterprises from Serbia in the observed period (p=0.000<α=0.05). Furthermore, the data showed that a 1%

increase in overall debt reduces food enterprise profitability by 0.87%, with all other conditions remaining constant. The same conclusion regarding the ratio of profitability and indebtedness was made by numerous authors who conducted similar research (Pervan, & Višić, 2012; Pathirawasam, & Knápková, 2013; Vătavu, 2014; Mijić, Zekić, & Jakšić, 2016; Andrašić, Mijić, Mitrović, & Kalaš, 2018; Dakić, Mijić, & Jakšić, 2019; Tomašević, 2020; Stoiljković, Balaban, & Simić, 2023), which is the basis for acceptance of the second hypothesis.

Several authors have explored the relationship between profitability and firm size. Based on the results obtained, some concluded that there is a negative and statistically significant relationship between the size and profitability of the company, while others that the relationship is positive and statistically significant. At the same time, the third group of authors showed that there is no statistically significant relationship between firm size and profitability. The results of this research indicate that between the firm size (measured by the natural logarithm of the value of total assets) and the profitability of food enterprises in the analyzed period, there is a negative and statistically significant relationship ($p =0.001<\alpha=0.05$), which means that smaller enterprises are more profitable compared to larger enterprises. The results obtained are in accordance with the results of various studies (Andrašić, Mijić, Mirović, & Kalaš, 2018; Mijić, Nuševa, & Jakšić, 2018; Tarihoran, & Endri, 2021; Yadav, Pahi, & Gangakhedkar, 2022). According to everything that is presented, the third hypothesis is rejected.

Intuitively, it can be predicted that the rise in sales compared to the prior period will raise the company's profitability, which the results of this research supported. Namely, the obtained results indicate that between the sales growth rate and profitability of food enterprises from Serbia in the analyzed period, there is a positive and statistically significant relationship ($p = 0.000<\alpha = 0.05$), which is in line with the results of numerous studies (Asimakopoulos, Samitas, & Papadogonas, 2009; Denčić-Mihajlov, 2014; Mijić, Zekić, & Jakšić, 2016; Andrašić, Mijić, Mirović, & Kalaš, 2018; Dakić, Mijić, & Jakšić, 2019; Fatmawati, 2019; Tarihoran, & Endri, 2021) and represents the basis for confirming the fourth research hypothesis.

It would be expected that companies with a higher level of materiality of assets, i.e., with a higher fixed-to-total asset ratio, have a higher degree of profitability because fixed assets can lead to an increase in operating income. However, this research shows that the rise in materiality results in a decrease in the profitability of food enterprises in Serbia. Namely, along with other unchanged conditions, an increase in the share of fixed assets in total assets by 1% leads to a decrease in the profitability of food enterprises by 11.60%. The obtained results showed a negative and statistically significant relationship between profitability and materiality of assets ($p=0.001<\alpha=0.05$). This may be due to insufficient funding sources and food enterprises' inability to employ or manage fixed assets efficiently. The results obtained are in line with the results of other authors who have conducted similar research (Vătavu, 2014; Mijić, Nuševa, & Jakšić, 2018). Accordingly, the fifth hypothesis is rejected.

Conclusion

In this article, the profitability of food enterprises from the territory of Serbia was investigated based on data related to the period from 2011 to 2021 to identify the fundamental determinants of profitability and determine their impact on the company's profitability level. The research analyzed the influence of five independent variables, namely liquidity, indebtedness, firm size, sales growth rate, and asset materiality, on the profitability of food enterprises. As a dependent variable, profitability was measured by the rate of return on assets. The research was based on the use of panel regression analysis. The research hypotheses were tested based on a fixed effect model, which proved to be the most appropriate.

The research results showed that the level of profitability of food enterprises from the territory of Serbia in the analyzed period is positively influenced by liquidity and sales growth rate. On the other hand, the indebtedness, firm size, and materiality of assets have a negative impact on the profitability of food enterprises. Of the mentioned variables, only liquidity does not affect profitability at a statistically significant level.

Based on the results obtained, it can be concluded that smaller food enterprises, with a lower level of indebtedness and a smaller share of fixed assets in total assets, achieve a higher degree of profitability because they are flexible, unburdened by the need to repay high loans and interest, as well as inefficient and insufficiently employed fixed assets, and can adequately respond to market demands.

The conducted research and obtained results can facilitate the adoption of sound business decisions by the company's management and thus lead to an increase in the profitability of food enterprises. Also, the research's results can be used to create and adopt systemic measures to support food enterprises in Serbia and accelerate their growth and development.

The significance of this research lies in its ability to improve business strategies and the sustainability of food enterprises in the Republic of Serbia. Understanding the key determinants of profitability and identifying effective management strategies can enable better decision-making and achieve a competitive advantage in this sector.

Theoretical implications

These findings carry significant theoretical implications for understanding the determinants of profitability in the food industry of the Republic of Serbia. Firstly, the identified relationship between liquidity, indebtedness, firm size, sales growth, and profitability contributes to enriching existing theoretical frameworks in financial management and firm performance. It underscores the importance of these factors in shaping the financial health and competitive advantage of food enterprises. Moreover, the findings suggest that the impact of specific determinants on profitability may vary depending on the industry context and geographical location. This highlights the need for nuanced theoretical models that account for sector-specific dynamics and regional

variations in business environments. It encourages researchers to develop more tailored theoretical frameworks that capture the intricacies of profitability determinants in different sectors and regions.

Additionally, the observed patterns of profitability determinants offer insights into the underlying mechanisms driving financial performance in the food industry. Scholars can refine existing theories of firm behavior and economic decision-making by understanding how liquidity, indebtedness, enterprise size, and sales growth influence profitability. This could lead to developing more comprehensive models that better capture the complexities of business operations and financial management in the food sector.

Practical implications

The practical implications of this research point to several key strategies managers of food enterprises in Serbia can employ to enhance profitability and achieve sustainable growth. Firstly, effective liquidity management can ensure business stability and facilitate access to financial resources. Additionally, optimizing indebtedness can reduce financial risk and increase the company's ability to generate profit. Furthermore, managers should direct efforts toward growing sales volume and achieving stable growth, which can be crucial for improving company performance. Analyzing the size of the enterprise can provide insights into optimal operational models and scaling strategies. At the same time, careful management of investments in fixed assets can optimize production capacities and ensure adequate returns on investment. Following these practical guidelines can give food businesses a competitive advantage and pave the way for sustained success in the market.

Limitations

While the results of this research are helpful, it is important to consider a few limitations. First, the paper focuses exclusively on the food industry in the Republic of Serbia, which can limit the generalization of results to other sectors or states. Secondly, although panel regression analyses have been used, there is a possibility of the influence of other factors not covered in this model. Third, the data used in the research was collected from publicly available sources, which may limit the accuracy and completeness of the information. Finally, this survey covers the period from 2011 to 2021, so the results may be subject to the impact of economic and market changes over that time period.

Framework for future research

Future research could deepen the understanding of the determinants of the profitability of food businesses through additional analysis of factors such as technological innovation, market competition, and regulatory framework. Also, research involving international comparisons or longitudinal studies could provide valuable insights into long-term trends and factors affecting profitability in the food sector.

Conflict of interests

The authors declare no conflict of interest.

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