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THE ROLE OF FOREIGN DIRECT INVESTMENT IN THE INTEGRATION OF ROMANIAN AUTOMOTIVE COMPANIES INTO THE GLOBAL VALUE CHAIN

Anamaria-Geanina Macovei
PhD in Economics, Associate Professor of the Department of Accounting, Audit and Finance, Stefan cel Mare University of Suceava, Suceava, Romania;
ORCID: 0000-0002-7995-1145

Aurel Burciu
D.Sc. in Economics, Professor of the Department of Management, Business Administration and Tourism, Stefan cel Mare University of Suceava, Suceava, Romania;
ORCID: 0000-0003-1628-2316

Cristina Gabriela Cosmulese
PhD in Economics, Department of Accounting, Audit and Finance, Stefan cel Mare University of Suceava, Suceava, Romania;
ORCID: 0000-0002-8406-7004

Roman Shchur
D.Sc. in Economics, Professor of the Department of Finance, Vasyl Stefanyk Carpathian National University, Ivano-Frankivsk, Ukraine;
e-mail: roman.shchur@pnu.edu.ua
ORCID: 0000-0001-9945-3939
(Corresponding author)

Roman Greshko
PhD in Economics, Associate Professor of the Department of Finance and Credit, Yuriy Fedkovych Chernivtsi National University, Chernivtsi, Ukraine;
ORCID: 0000-0003-3054-356X

Artur Zhavoronok
PhD in Economics, Associate Professor of the Department of Finance and Credit, Yuriy Fedkovych Chernivtsi National University, Chernivtsi, Ukraine;
ORCID: 0000-0001-9274-8240

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ABSTRACT

In the context of intensifying economic interdependencies and the strategic repositioning of the automotive industry globally, foreign direct investment (FDI) is a key determinant of technology transfer, competitive advantage consolidation, and the integration of automotive companies from emerging economies into international value chains. This study aims to investigate how financial performance – reflected in indicators such as return on assets and equity, the efficiency of domestic and foreign direct investments, and solvency – influences the financial sustainability of companies in the Romanian automotive industry. To achieve the research objectives, companies active in the Romanian automotive industry in 2024 were selected, identified on the basis of data available in the national database listafirme.ro. These formed the basis of the econometric analysis, designed to highlight the relationship between financial indicators and company sustainability. Based on the econometric model applied to automotive companies in Romania, a series of relevant results were obtained. The results of the econometric model show that ROA is the main determinant of financial sustainability, confirming the essential role of efficient asset utilisation in maintaining long-term stability. It was observed that ROE has a negative influence on sustainability, suggesting the existence of risky financial strategies or a high degree of indebtedness among Romanian automotive companies. In contrast, ROI has a positive effect, demonstrating that firms are able to capitalise on their invested capital. Foreign direct investment profitability (RFDI) and solvency show positive correlations with financial sustainability, indicating that access to foreign capital and a balanced financial structure increase firms' resilience to risk. Finally, the increase in FDI is a sign of the integration of Romanian automotive companies into the global value chain (GVC) by connecting them to international production, supply, and distribution networks. Thus, foreign direct investment not only strengthens the financial position of companies but also facilitates access to advanced technologies and foreign markets, contributing to their long-term competitiveness and sustainability.

Keywords: development, investment, environment, financial sustainability, foreign direct investment, auto industry, global value chain, economic integration, Romania

JEL Classification: C10, C33, M41

INTRODUCTION

At a time when the economy is undergoing globalisation, global value chains (GVCs) are considered by specialists to be a strategic value structure for companies/enterprises around the world. GVCs represent opportunities for development, diversification, and access to foreign markets. They represent complex production and distribution networks (Neilson et al., 2014) in which companies are involved in every stage, from the supply of raw materials to the delivery/distribution of finished products to consumers/customers. Companies collaborate and specialise in order to create value. Thus, companies in different fields of activity expand their production and innovation processes in several countries, taking advantage of each market, reducing costs and improving efficiency (Tiscenco et al., 2024). The automotive industry is considered a sector for companies that want to integrate into GVCs, due to its complex production requirements and high

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level of interconnectivity. Given Romania's strategic position, natural and human resources, and the evolution of the country's infrastructure, Romanian companies in this sector have been trying to integrate into global value chains in recent decades. Foreign direct investment (FDI) is key for companies/enterprises in the field to integrate into GVCs. FDI brings financing to build production capacities and advanced technologies, supports long-term investments and managerial know-how. Through FDI, Romanian companies are able to use advanced technologies and apply international management practices that make companies more competitive and efficient. International trade and strategic cooperation with foreign partners (Lagodiienko et al., 2022) offer Romanian automotive companies' opportunities to diversify and modernise their production lines, as well as to better adapt to international standards. Our study is based on the following question: to what extent do these FDI influence the long-term sustainability of automotive companies? In this context, sustainability is understood as the ability of a company/enterprise to maintain or grow in a sustainable manner, to withstand economic fluctuations and multiple crises, and to meet the most stringent environmental and corporate governance requirements.

The sustainability of companies in the automotive industry is a priority objective, given the capital-intensive nature of this sector and its significant impact on the economy. The automotive industry involves substantial investments in equipment, technology, and skilled labour. The medium- and long-term success and stability of companies depend on their ability to manage the resources they use (Socoliuc et al., 2020). In a global context, companies are forced to adapt to a complex and constantly changing economic environment. Financial sustainability also contributes to the development of the regional/national economy and directly contributes to the consolidation of gross domestic product (GDP). In recent years, the financial stability of companies has emerged as a determining factor in their ability to adapt and develop in an economic environment characterised by increasing complexity and competitiveness.

In this context, our approach aims to analyse the impact of certain macroeconomic financial indicators on the sustainability of companies in the Romanian automotive industry, a strategic sector of the national economy, characterised by attracting a significant volume of foreign capital and making a major contribution to the country's exports. In order to capture this influence as accurately as possible, we focus on relevant indicators such as return on equity (ROE), return on foreign direct investment (RFDI), return on domestic investment (ROI), return on assets (ROA), and solvency level. These indicators are essential benchmarks for assessing the economic performance and financial stability of companies, as they reflect their ability to generate profit, use investment resources efficiently, and meet their medium- and long-term financial obligations. In addition to analysing the values of financial indicators, this research aims to study, in particular, how FDI contributes to the financial resilience of companies in the automotive industry. More specifically, we are interested in whether these investments influence the stability of companies. Finally, the study provides an interpretation of the relationship between the analysed indicators and the sustainability of companies in the automotive industry and offers several strategies for optimising investments.

LITERATURE REVIEW

FDI is recognised as a driver of economic growth and competitiveness (Sahoo et al., 2011; Bermejo Carbonell & Werner, 2018), playing a particularly important role in capital-intensive industries such as the automotive industry. They bring financial capital, facilitate the transfer of technology and managerial know-how, thus contributing to the optimisation of production flows and global operational growth (Doukas & Lang, 2003; Sharma & Kharj, 2011; Shinwari et al., 2024). In this regard, the literature emphasises that FDI influences short-term financial performance but strengthens the long-term sustainability of companies (Dinh et al., 2019; Henri et al., 2019; Saloid et al., 2021). In addition, Dinh et al. (2019) and Grosu et al. (2021) show that there are still few studies on the impact of FDI on emerging markets, hence the relevance of such an analysis for the Romanian context.

At the macroeconomic level, FDI has helped Central and Eastern European countries become production centres for large global automotive companies, which has facilitated their integration into regional and global value chains (Radosevic & Rozeik, 2005; Pavlínek & Ženka, 2010; Dicken, 2011; Tulchynska et al., 2021). Similarly, in Romania, FDI has supported the connection of automotive companies to international production, assembly, and distribution networks, increasing productivity and competitiveness (Macovei et al., 2024; Zybareva et al., 2022). In particular, Murakami and Otsuka (2020) and Boly et al. (2015) highlight the positive effect of collaboration with multinationals, which favours the transfer of advanced technologies and stimulates local businesses, generating a process of accelerated modernisation.

Furthermore, integration into global value chains (GVCs) allows local companies to benefit from extensive networks of suppliers and distributors, leading to decentralisation of production and reduction of costs and risks (Gereffi et al., 2005; Gereffi & Lee, 2016). This connection amplifies both operational flexibility and the ability of firms to respond to consumer demands (Jiang et al., 2019; Vovk et al., 2021).

In terms of financial performance, studies show that FDI influences indicators such as ROE and ROA, suggesting the efficient use of capital and assets (Meyer & Sinani, 2009; Siminica et al., 2019; Grosu et al., 2024; Popelo et al., 2023). Complementarily, the return on foreign investment (RFDI) and internal investment (ROI) reflect companies' ability to leverage external and domestic resources in support of sustainable growth (Eisenmann, 2006; Abu & Karim, 2016; Al-Sadig, 2013; Rieznyk et al., 2023). Furthermore, solvency remains an essential benchmark of financial stability, influencing the attractiveness of firms to investors (Modigliani & Miller, 1958; Macovei & Scutaru, 2016; Zabolotnyy & Wasilewski, 2019).

In conclusion, although the literature confirms the positive effects of FDI on financial performance and integration into GVCs (Borin & Mancini, 2016; Nimtrakoon, 2015), there is still a research gap regarding how they support long-term financial sustainability in the Romanian automotive industry, especially in the context of new technologies and process robotisation (Anzolin et al., 2022; Hryhorkiv et al., 2018; Shaposhnykov et al., 2023).

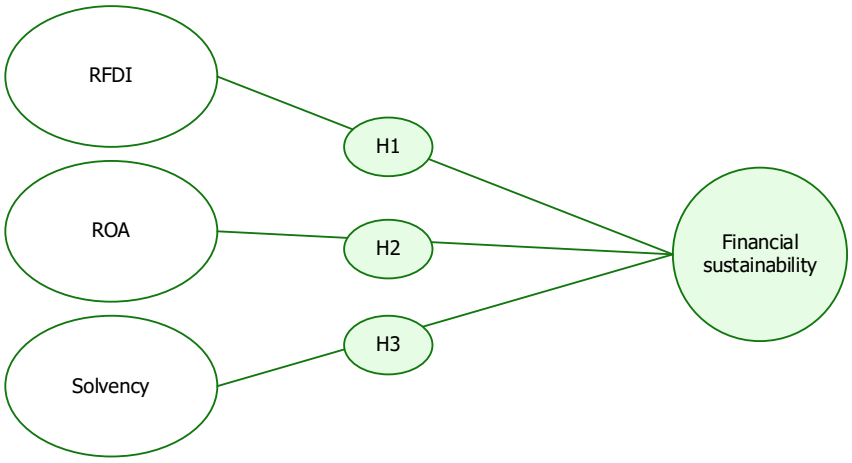

Figure 1. Proposed conceptual framework.

Based on previous studies and the conceptual framework (Figure 1), the study develops the following hypotheses:

- *Hypothesis 1 (H1)*: Return on Foreign Direct Investment (RFDI) has a significant positive influence on the financial sustainability of companies in the Romanian automotive sector.
- *Hypothesis 2 (H2)*: Return on assets (ROA) contributes positively to strengthening the financial sustainability of Romanian automotive companies through the efficient use of internal resources.
- *Hypothesis 3 (H3)*: A higher level of solvency increases the attractiveness of companies in the automotive sector for FDI, thus strengthening their financial sustainability.

AIMS AND OBJECTIVES

The purpose of this study is to examine the role of foreign direct investment in the integration of Romanian automotive firms into the global value chain and its effect on their financial sustainability. In this context, the goal is to assess how financial metrics such as return on assets (ROA), return on equity (ROE), return on investment (ROI), and solvency influence the companies' financial performance and long-term stability. The research will also investigate the relationship between FDI inflows and their incorporation into international production and distribution networks, as well as the impact of technology transfer on enhancing competitiveness. Finally, the contribution of foreign investment to bolstering the financial resilience of firms by enabling access to international markets and advanced technologies will be analyzed.

METHODS

This study uses an econometric approach to analyse the impact of financial macroeconomic indicators on the sustainability of companies in the Romanian automotive industry, in the context of their integration into global value chains (GVCs). The research selected companies active in the automotive industry in 2024, identified based on data available in the national database listafirme.ro. In that year, the automotive sector in Romania had 336 active entities (manufacturers, suppliers/sub-suppliers, distributors and dealers), of which 222 had majority foreign capital, mainly from Germany, Italy, France,

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the United States and Austria.

Of the total number of companies identified, financial reports for 2024 could be collected and validated for 332, which represented the final sample for the research. The inclusion criterion was the existence of complete and publicly accessible financial reports, while the exclusion criterion was the lack of relevant financial data or incomplete financial statements. From a territorial point of view, the analysis highlighted a concentration of foreign investment and automotive companies in counties with developed infrastructure, skilled labour, and access to industrial parks (Argeș, Dolj, Timiș, Sibiu, Brașov, Cluj, Bihor, Alba), while the eastern and south-eastern regions of the country remain poorly industrialised due to infrastructure deficits.

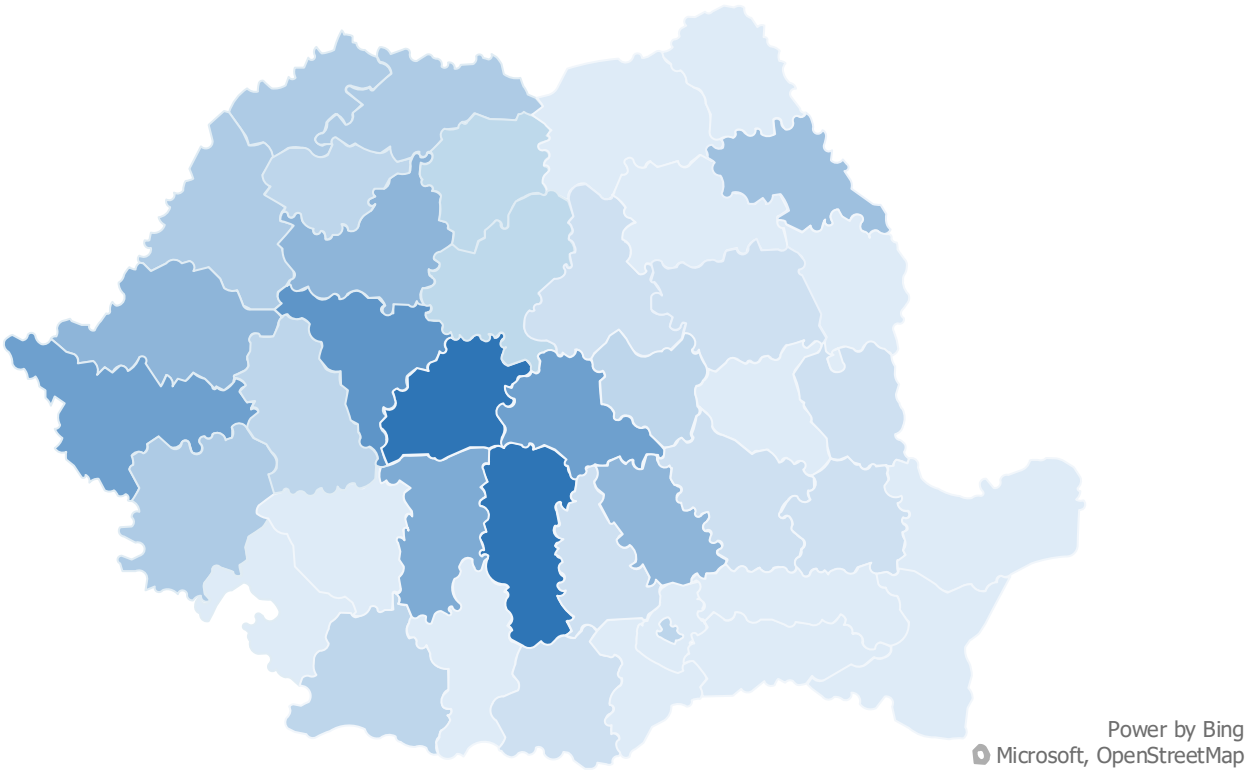

Figure 2. Map of automotive companies in Romania. *(Source: Prepared by the author using Excel, database (https://listafirme.ro))*

Analysing the map, we can see that the western and central regions of the country have a higher density of automotive companies, while the east and south-east remain poorly industrialised. We note that automotive companies in Romania are located in counties with access to infrastructure, industrial parks, and European connections, while other regions are less developed due to a lack of infrastructure.

The methodology applied consists of econometric analysis of the relationships between selected financial indicators – return on equity (ROE), return on assets (ROA), return on domestic investment (ROI), return on foreign direct investment (RFDI), and solvency level – and the financial sustainability of companies. Multiple regression techniques and correlation testing were used to estimate the relationships, which made it possible to highlight the mechanisms through which foreign direct investment contributes to strengthening financial performance and stability. Public financial databases (listafirme.ro, Ministry of Public Finance) were used, as well as specialised statistical software – SPSS vs 26, which enabled statistical processing, econometric model estimation, and testing of the significance of the hypotheses formulated.

In terms of methodological basis, the study is in line with similar research in the international literature, which has analysed the relationship between FDI, macroeconomic indicators, and the performance of industrial companies. For example, the studies by Boly et al. (2015) and Murakami & Otsuka (2020) demonstrated the role of FDI in technology transfer and in increasing the economic performance of local companies integrated into GVCs. In this sense, our model is built as an extension applied to the particular case of Romania, with a focus on the automotive industry – a strategic sector with a high share in national exports and an intense level of international integration.

The study examines the relationship between FDI and the variables mentioned, thus providing a complex model to explain the impact of foreign investment on long-term sustainability. In this context, the proposed econometric model has the

general form:

Financial Sustainability=α+β_1*ROE+ β_2*ROA+ β_3*RFDI++ β_4*ROI+ β_5*Solvability+ ε,

where: *financial sustainability – dependent variable; ROE, ROA, RFDI, ROI, and Solvency – independent variables; αβ_i i=(1,5) ¯are the parameters of the model.*

RESULTS

The analysis of the data presented in Table 1 highlights the fact that the strongest correlation is between financial sustainability and the ROA indicator, with a value of 0.915. ROA is an essential benchmark of financial performance, as it measures a company's ability to generate income through the efficient use of available assets. Numerous studies support the relevance of this indicator in assessing financial sustainability, thus confirming the high correlation found in the present analysis.

Table 1. Matrix of correlations. *(Source: Prepared by the author using IBM SPSS Statistics, Version 26)*

		Financial Sustainability	ROE	ROA	RFDI	ROI	Solvency
Pearson Correlation	Financial Sustainability	1.000	.486	.915	.873	.488	.484
	ROE	.486	1.000	.453	.465	.987	.277
	ROA	.915	.453	1,000	.784	.455	.373
	RFDI	.873	.465	.784	1,000	.455	.456
	ROI	.488	.987	.455	.455	1.000	.226
	Solvency	.484	.277	.373	.456	.226	1,000

The results of the study show that there are weak correlations between Financial Sustainability and the other indicators analysed, as follows: between Financial Sustainability and ROI, we have a correlation coefficient of 0.488, between Financial Sustainability and ROE, we have a correlation coefficient of 0.486, and between Financial Sustainability and Solvability, we have a correlation coefficient of 0.484. Furthermore, the Ggraph function allows for a detailed graphical visualization of the relationships between the variables included in the econometric model, highlighting how they interact within the model structure.

Analysing Figures 1 for Financial Sustainability, ROE, ROA, RFDI, and ROI, we observe a positive antisymmetric distribution with a strong accumulation around zero, which indicates the presence of outliers, while for Solvency, the distribution is more balanced, indicating lower variability within the analysed sample.

Following the application of multiple linear regression, the Model Summary table was generated, summarising the explanatory power of the model obtained.

Table 2. Model Summary. *(Source: Prepared by the author using IBM SPSS Statistics, Version 26)*

Model	R	R Square	Adjusted R-Square	Std. Error of the Estimate
1	.955[a]	.912	.910	.29921738
a. Predictors: (Constant), Solvability, ROI, ROA, RFDI, ROE				

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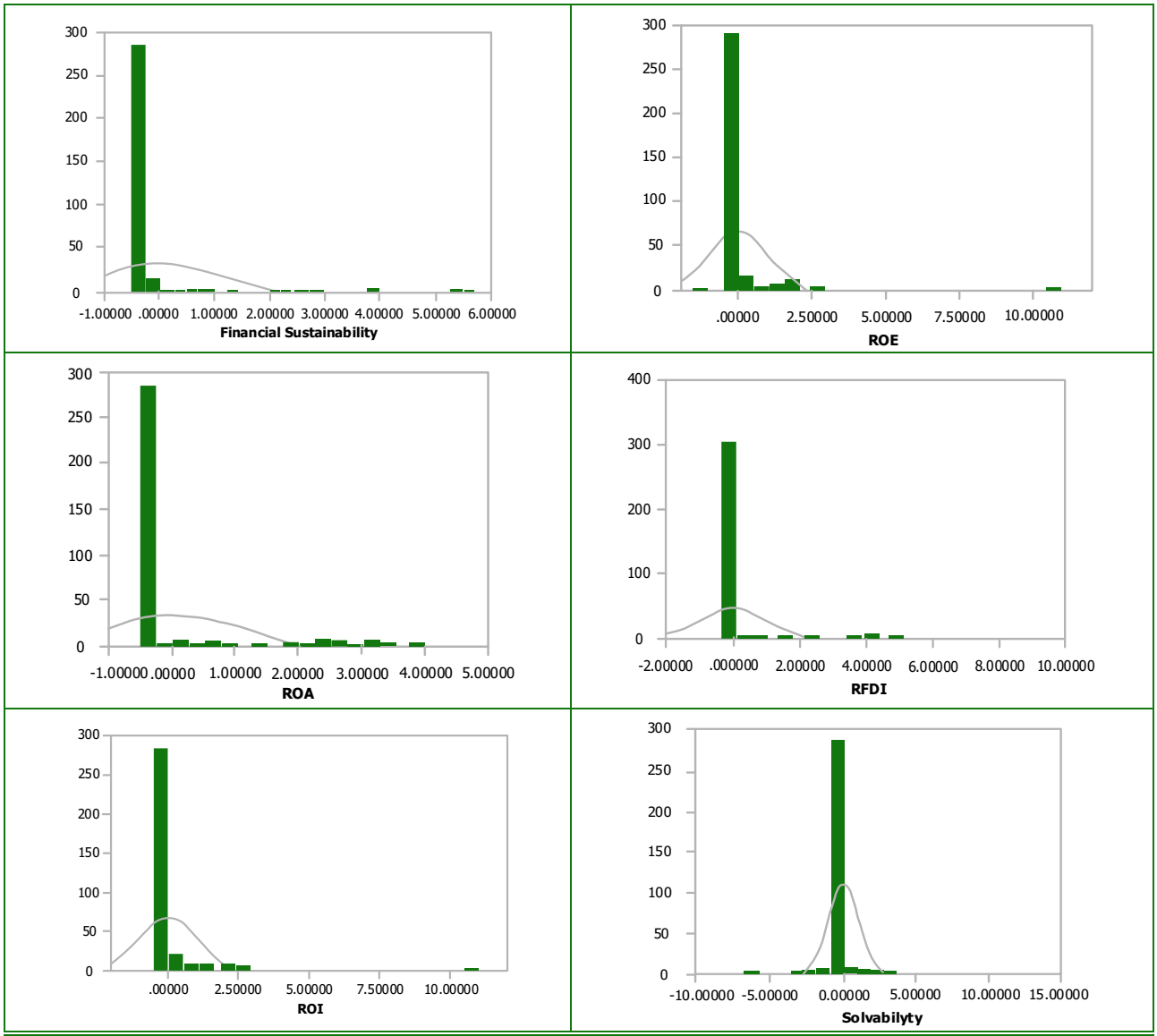

Figure 3. Ggraph. *(Source: Prepared by the author using IBM SPSS Statistics, Version 26)*

Analysing Table 2, we can see that there is a very strong correlation between the variables in the model, with a value of 0.955. Therefore, the model constructed explains very well the variation in financial sustainability based on performance indicators (ROE, ROA, RFDI, ROI, and Solvency). Analysing the database, we observe that there are automotive companies with high profitability values. The variation in financial sustainability is influenced, on average, by 91.2% by the variation in the financial performance indicators included in the multiple linear model. The degree of error in the model's prediction is 0.29921738, which indicates a fairly accurate estimate.

To assess the overall significance of the linear regression model, the ANOVA table was determined, the results of which are presented below:

Table 3. Anova. *(Source: Prepared by the author using IBM SPSS Statistics, Version 26)*

Model		Sum of Squares	df	Mean Square	F	Sig
1	Regression	301.813	5	60.363	674.208	.000b
	Residual	29.187	326	.090		
	Total	331.000	331			
a. Dependent Variable: Financial Sustainability						
b. Predictors: (Constant), Solvability, ROI, ROA, RFDI, ROE						

The ANOVA table evaluates the overall significance of the econometric model obtained, so the independent variables (ROE, ROA, ROI, RFDI, solvency) have a significant effect on the dependent variable (financial sustainability), thus validating the model, explaining the financial sustainability of companies in the automotive industry and enabling decision-making strategies to optimise performance (Andreev et al., 2022). Furthermore, to assess the individual influence of each financial indicator on financial sustainability, the table below will be analysed (Table 4):

Table 4. Regression coefficients. *(Source: Prepared by the author using IBM SPSS Statistics, Version 26)*

Model		Unstandardised Coefficients		Standardised Coefficients	T	Sig
		B	Std. Error	Beta		
1	(Constant)	2.473E-17	.016		.	1
	ROE	-.368	.111	-.368	-3.321	.001
	ROA	.576	.027	.576	21.275	.000
	RFDI	.357	.028	.357	12.742	.000
	ROI	.399	.110	.399	3.625	.000
	Solvency	.118	.020	.118	6.029	.000
a. Dependent Variable: Financial Sustainability						

The Coefficients table presents information about the statistical significance, direction, and intensity of the relationship between variables, as well as the coefficients of the proposed model. Thus, we have the multiple linear equation of the form:

Financial Sustainability = (2.473E-17)-0.368*ROE+ 0.576*ROA+0.357*RFDI+ 0.399*ROI+ 0.118*Solvability (1)

The analysis of the multiple regression coefficients shows that a 1% increase in ROE causes, ceteris paribus, an average decrease in financial sustainability of 0.368%. This finding, supported by Kiliç et al. (2022) but contradicted by other studies (Weber, 2017; Siminica et al., 2019; Zainudin et al., 2021), reflects the specific vulnerabilities of automotive companies in Romania. The data analysed indicate a high level of indebtedness and financial risk-taking in the period 2020–2023, generated by major external shocks: the Covid-19 pandemic (Melega et al., 2021), the conflict in Ukraine, and global instability, which have amplified inflationary pressures, disrupted supply chains, and increased raw material costs. In this context, many companies have resorted to external financing to maintain their current operations, invest in digitalisation, or transition to electric vehicle production in response to strict environmental requirements and technological innovations. The accelerated growth of ROE in such conditions may be associated with short-term financial strategies, which affect long-term stability and sustainability. Consequently, understanding the limitations of this indicator requires the adoption of investment policies aimed at consolidating sustainable financial success.

On the other hand, the coefficient associated with ROA (0.576) shows that a 1% increase in this indicator leads to an average increase in financial sustainability of 0.576%, with the other variables remaining constant. This relationship confirms the central role of ROA in financial sustainability strategies, as a high return on assets reflects the efficient use of company resources and effective management of fixed and current assets (Heikal et al., 2014). The results show that companies that base their strategies on increasing ROA manage to consolidate their profitability and create the necessary conditions for long-term sustainable development. RFDI is a very important indicator as it is related to FDI in this area. If RFDI increases by 1% and the other variables remain constant, then Financial Sustainability will increase by an average of 0.357%. This positive relationship suggests that FDI has an impact on the financial stability of companies in the automotive industry. The contribution of foreign capital helps to consolidate financial resources and access to management know-how and technology for companies. At the same time, the increase in RFDI reflects a process of integration of Romanian automotive companies into GVCs, by attracting international partnerships, aligning with international quality standards, and participating in production and distribution networks. Thus, FDI strengthens the financial position of companies, offers the opportunity to become suppliers or collaborators within transnational industrial ecosystems, which contributes to the long-term sustainability and competitiveness of the Romanian automotive sector.

The econometric model shows that, keeping the other indicators (ROE, ROA, RFDI and solvency) constant, a 1% increase in ROI leads to an average increase of 0.399% in financial sustainability. This result confirms that ROI reflects the efficiency of invested capital, and a high level of this indicator increases the credibility of companies in international production and supply networks, facilitating access to advanced technologies, global customers, and foreign markets. Similarly, the positive

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coefficient associated with solvency (0.118) shows that a balanced financial structure plays an essential role in maintaining economic stability and long-term resilience.

Linear regression analysis was used to identify the indicators with the greatest contribution to financial sustainability. The results show that the most significant impact is exerted by ROA, followed by RFDI, solvency, ROI, and, lastly, ROE. This hierarchy reflects the distinct nature of each indicator and the particular way in which it influences the financial performance of companies. At the same time, the Casewise Diagnostics analysis identified three companies with significant deviations from the model's estimated values, suggesting the existence of structural or strategic peculiarities that cannot be fully explained by the variables included in the analysis (see Table 5).

Table 5. Casewise Diagnostics. *(Source: Prepared by the author using IBM SPSS Statistics, Version 26)*

`	Std. Residual	Financial Sustainability	Predicted Value	Residual
1	6.144	5.56525	3.7267867	1838461.56
2	6.387	5.49735	3.5862036	1.91114392
244	3.269	2.78823	1.8100583	.97817405
245	4.734	2.84186	1.4254877	1416377.23
255	-4.998	.27109	1.7664436	-1.49535453
256	-5.031	-.10721	1.3981491	-1.50535616
257	-3.894	-0.15453	1.0106581	-1.16518506
260	-5.972	-0.08463	1.7022547	-1.78688915
a. Dependent Variable: Financial Sustainability				

The histogram of the residuals does not indicate a clear normal distribution, as the shape of the graph is visibly asymmetrical and slightly flattened compared to the ideal normal curve. Also, in the Normal P–P Plot diagram, the points deviate from the diagonal reference line, especially in the extreme areas, suggesting that the residuals are not normally distributed.

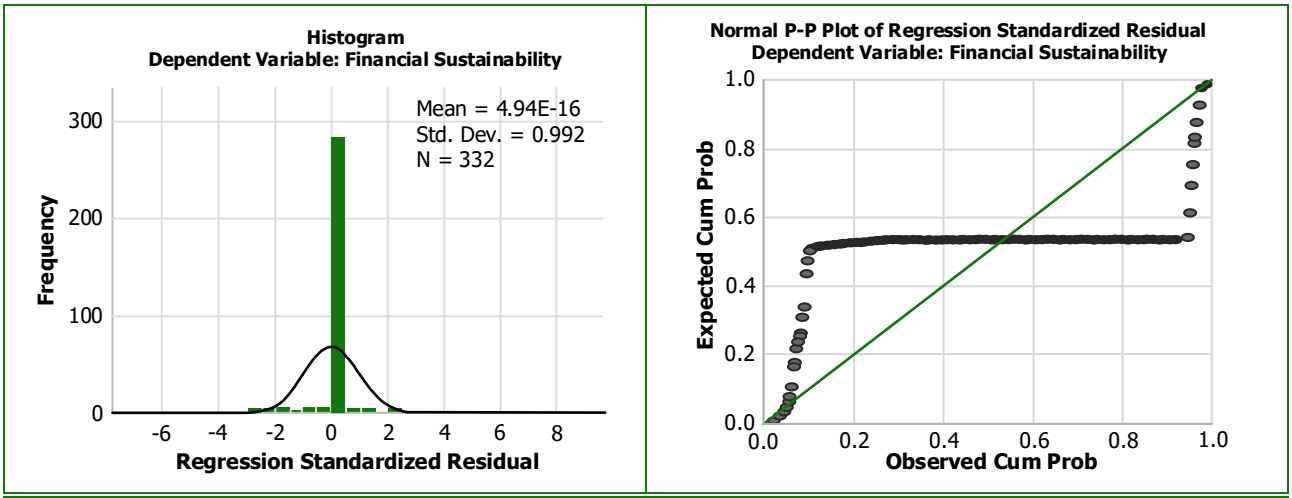

Figure 4. Histogram and Chart P-P Plot. *(Source: author's computation with the aid of IBM SPSS Statistics, Version 26)*

The econometric analysis highlights the existence of significant relationships between the main financial indicators and the level of financial sustainability of companies in the Romanian automotive industry. The proposed model validates the idea that financial sustainability does not depend exclusively on profitability, but also on the quality of investment decisions, the level of risk assumed, and access to external capital.

DISCUSSION

This study examines the main determinants of the financial sustainability of Romanian automotive companies, focusing on the role of FDI, return on assets, and solvency. The analysis highlights how external capital contributes to the resilience of the sector, how the efficient use of internal resources strengthens sustainable performance, and how maintaining a

balanced financial structure increases attractiveness to investors and supports long-term competitiveness. Each of these dimensions is discussed separately below to highlight their theoretical and practical implications in the light of the specialist literature. The results of the econometric model show that the financial sustainability of Romanian automotive companies is determined by a combination of foreign capital inflows, efficient use of internal resources, and maintaining a balanced financial structure. To better understand the implications of these factors, the hypotheses formulated are analysed separately, highlighting their theoretical and practical relevance in light of the specialist literature.

The contribution of FDI to strengthening the resilience of the Romanian automotive industry

FDI is an essential source of capital, technology, and managerial know-how, contributing to the competitiveness and stability of the automotive sector. Thus, FDI-backed companies have demonstrated a greater ability to adapt to economic shocks and resume operations after crises — a phenomenon highlighted by the study by Bernat et al. (2025), which analyses foreign-owned entities during the pandemic. Furthermore, in the context of Romania, recent reports highlight that FDI brings significant benefits such as job creation, increased exports, and the transfer of skills in the automotive sector (FIC, 2023).

This study examines the influence of foreign direct investment (FDI) on the financial sustainability of automotive companies in Romania. This study finds that there is a strong and positive correlation between FDI and financial sustainability indicators (0.873), confirming that the inflow of foreign capital directly contributes to the resilience of the industry. This means that FDI not only facilitates infrastructure development and technology transfer, but also creates the conditions for the integration of Romanian automotive companies into international value chains.

The results of this study are also consistent with the analysis by Bajaj & Bhooshetty (2024), which highlights that FDI supports increased competitiveness by providing the financial resources necessary for innovation. In addition, this study finds that the effects of RFDI go beyond the purely financial dimension, also supporting the transition to green energy, as shown in studies (Qamruzzaman, 2024; Brînzaru et al., 2023), which highlight the role of FDI in promoting the use of renewable energy resources. The results thus prove that foreign investment is an essential catalyst for sustainability.

Therefore, the findings of this study support the validity of H1, indicating that FDI strengthens the financial resilience and competitiveness of Romanian automotive companies. Consequently, it is justified to consolidate public policies that favour attracting foreign capital and capitalising on it for sustainable development.

The contribution of asset profitability to the sustainable performance of Romanian automotive companies

In the automotive sector, adaptable integration to volatile market conditions is essential: McKinsey (2023) highlights the central role of organisational resilience, which is stimulated by the efficient use of resources and the ability of firms to quickly reorient their operations in crisis situations. This suggests that a high ROA not only improves performance but also provides the flexibility needed for strategic adaptation (Heikal et al., 2014).

This study finds that a high ROA reflects efficient resource use and a superior ability to adapt to market volatility. This means that firms that manage their assets better are more likely to sustain their financial performance and implement responsible corporate governance strategies.

Regarding H2, which highlights the positive relationship between return on assets (ROA) and financial sustainability, the data show that a high ROA reflects efficient use of resources and a greater ability to adapt to market volatility. Similar conclusions are supported by Praptiningsih et al. (2022), who show that organisations with high ROA not only perform better financially, but also align their strategies with sustainable development goals, integrating responsible corporate governance principles.

The results prove that return on assets is not only an indicator of economic efficiency but also a predictor of resilience and sustainability in the industry. The results of this study support the validity of H2, indicating that an increase in ROA has a direct positive impact on the financial sustainability of Romanian automotive companies.

Solvency as a factor of investment attractiveness and financial resilience in the automotive industry

Maintaining a balanced financial structure is fundamental to the sustainability and credibility of automotive companies. The study by Chap & Liu (2024) highlights that a solid financial position significantly reduces the risk of insolvency, especially in capital-intensive industries such as the automotive industry. This signals predictability and long-term reliability to investors. In addition, the reconceptualisation of corporate resilience in the post-pandemic era (Daadmehr, 2024) shows that financial stability forms the basis of a robust mechanism for adapting to external shocks.

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Regarding Hypothesis 3, according to which a higher level of solvency increases the attractiveness of Romanian automotive companies to foreign investors, the analysis confirms that this indicator supports financial stability and reduces the risks associated with indebtedness. The results are in line with the studies by Săbau-Popa et al. (2022), which show that a balanced financial structure facilitates access to capital and strengthens long-term resilience. At the same time, high solvency acts as a positive signal for foreign investors, strengthening the position of companies in global competition.

The results prove that solvency is an essential factor in financial sustainability and a determinant of attractiveness for foreign capital. The results of this study support the validity of H3, indicating that maintaining an adequate level of solvency increases the chances of Romanian automotive companies to attract foreign investment and strengthen their position in international value chains.

CONCLUSIONS

This study proposed a statistical analysis to determine the extent to which the main financial indicators influence the financial sustainability of companies in the Romanian automotive industry. Using multiple linear regression methodology, the framework of this study included indicators such as ROE, ROA, RFDI, ROI, and solvency, with financial sustainability as the dependent variable. The estimated model shows a high level of accuracy, with a coefficient of determination R^2 = 0.912 and an adjusted R^2 = 0.910, which confirms the high capacity of the included predictors to explain the variation in financial sustainability.

Further analysis of the results of Model 1 confirms that the financial sustainability of Romanian automotive companies is closely linked to how they manage their assets, attract foreign capital, and maintain internal financial balance. This significant positive association could be due to the fact that efficient use of assets (ROA) increases firms' ability to cope with market volatility, while RFDI strengthens integration into GVCs and brings technological know-how. At the same time, ROI and adequate solvency ensure a stable financial climate, reducing risks and enhancing the attractiveness of companies to investors. In contrast, the inverse relationship between ROE and sustainability can be explained by the fact that artificially increasing profitability through high leverage undermines long-term stability.

This study also contributes to a better understanding of how domestic and foreign capital interact in shaping the resilience of the automotive sector. The results confirm that attracting FDI and improving investment performance facilitates the integration of Romanian automotive companies into global value chains, allowing access to innovation, know-how, and foreign markets. This integration strengthens competitiveness and supports the transition to sustainable development.

This research has implications in multiple areas of interest. At the managerial level, it provides a tool to support decision-making on capital structure and investment strategies. At the investment level, the results can be used to assess the attractiveness and finances of Romanian automotive companies. At the public policy level, the study provides arguments for strengthening the framework for attracting FDI and for implementing sustainability policies tailored to the specificities of the automotive industry.

Limitations and future research directions

Several limitations of this study have been identified. Firstly, the analysis focused exclusively on companies in the Romanian automotive industry, which limits the generalisation of conclusions to other sectors or economies. Secondly, the indicators used capture only part of the complexity of financial sustainability, without integrating external factors such as government policies, accelerated technological changes, or global demand dynamics. Third, the available data only reflects a limited period of time, making it difficult to capture long-term effects or major economic shocks (e.g., financial crises, pandemics, green transition).

Future research directions should include extending the analysis to an international sample to test the robustness of the identified relationships, as well as applying advanced econometric models that better capture the dynamics of the relationships between financial indicators. In addition, the integration of non-financial factors, such as ESG indicators or the level of technological innovation, could provide a more complete picture of the sustainability of the automotive sector.

ADDITIONAL INFORMATION

AUTHOR CONTRIBUTIONS

All authors have contributed equally.

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CONFLICT OF INTEREST

The Authors declare that there is no conflict of interest.

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Маковей А.-Г., Бурчу А., Космулесе К. Г., Щур Р., Грешко Р., Жаворонок А.

РОЛЬ ПРЯМИХ ІНОЗЕМНИХ ІНВЕСТИЦІЙ В ІНТЕГРАЦІЇ РУМУНСЬКИХ АВТОМОБІЛЬНИХ КОМПАНІЙ У ГЛОБАЛЬНИЙ ЛАНЦЮГ СТВОРЕННЯ ВАРТОСТІ

У контексті посилення економічної взаємозалежності та стратегічного перепозиціонування автомобільної промисловості в усьому світі прямі іноземні інвестиції (ПІІ) є ключовим фактором трансферу технологій, консолідації конкурентних переваг та інтеграції автомобільних компаній із країн, що розвиваються, у міжнародні ланцюги створення вартості. Це дослідження має на меті вивчити, як фінансові показники, що відображаються в таких показниках, як

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рентабельність активів і власного капіталу, ефективність внутрішніх і прямих іноземних інвестицій, а також платоспроможність, впливають на фінансову стійкість компаній румунської автомобільної промисловості. Для досягнення цілей дослідження були відібрані компанії, що діяли в румунській автомобільній промисловості 2024 року, визначені на основі даних, доступних у національній базі даних listafirme.ro. Вони лягли в основу економетричного аналізу, розробленого для виявлення зв'язку між фінансовими показниками та стійкістю компаній. На основі економетричної моделі, застосованої до автомобільних компаній Румунії, було отримано низку відповідних результатів. По-перше, результати економетричної моделі показують, що ROA є основним фактором фінансової стійкості, що підтверджує важливу роль ефективного використання активів у підтримці довгострокової стабільності. По-друге, було відзначено, що ROE негативно впливає на стійкість, що свідчить про існування ризикованих фінансових стратегій або високий ступінь заборгованості серед румунських автомобільних компаній. Навпаки, ROI має позитивний вплив, демонструючи, що фірми здатні капіталізувати свій інвестований капітал. По-третє, прибутковість прямих іноземних інвестицій (RFDI) і платоспроможність демонструють позитивну кореляцію з фінансовою стійкістю, що вказує на те, що доступ до іноземного капіталу та збалансована фінансова структура підвищують стійкість фірм до ризику. Збільшення прямих іноземних інвестицій є ознакою інтеграції румунських автомобільних компаній у глобальний ланцюг створення вартості (GVC), шляхом підключення їх до міжнародних мереж виробництва, постачання та розподілу. Отож, прямі іноземні інвестиції не лише зміцнюють фінансове становище компаній, а й полегшують доступ до передових технологій та іноземних ринків, сприяючи їхній довгостроковій конкурентоспроможності та стійкості.

Ключові слова: розвиток, інвестиції, навколишнє середовище, фінансова стійкість, прямі іноземні інвестиції, автомобільна промисловість, глобальний ланцюг створення вартості, економічна інтеграція, Румунія

JEL Класифікація: C10, C33, M41