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CREDIT FOR AGRICULTURAL MACHINERY WITH OR WITH OUT IT SUPPORT IN THE PREPARATION OF DOCUMENTATION FOR MEDIUM-SIZED AGRICULTURAL ENTERPRISES

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Abstract: Lending is one of the important ways of buying agricultural machinery - It is of particular importance for the business of medium-sized agricultural companies that need to take into account the complex perception of numerous influencing factors, above all the influence on the formation of the level of interest rates as the driver of all purchases, especially equipment. It was found that there is a significant difference if the documentation that was made for the purposes of obtaining a loan was previously controlled by IT support systems in comparison to documentation where there was no control through IT. Apart from that, the biggest influence of individual factors on crediting is given by the following factors: management of loans, i.e. credit flow, participation in loans and interest rates within the overall overview of purchases of agricultural machinery in the regular business of medium-sized agricultural enterprises. All of this was reinforced by the fact that it was discovered that it is possible to predict the interest rate through other analyzed factors, especially loan repayment and lending of agricultural machinery, i.e. equipment, because they have a significant impact on the analyzed interest rate factor ($p<0.0005$).

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The obtained values of the interest rate can essentially be predicted based on the independent variables since the model is statistically significant ($F=185.22$, $p<0.0005$) and thus the overall process of lending agricultural machinery in the functioning of medium-sized agricultural enterprises can be observed.

***Key words**: lending, agricultural technology, business decision-making.*

INTRODUCTION

Numerous management factors in the work of medium-sized agricultural enterprises and other legal entities affect the real business, but basically the acquisition of agricultural and other equipment is one of the expensive factors that are essentially procured through loans, and it is the focus of numerous researches [1-6].

One of the extremely important issues in dealing with agricultural equipment and its procurement is the level of the interest rate, the prediction of which can essentially be predicted based on the analysis of numerous factors that, within the credit relationship, represent the analysis of independent variables that influence the making of management decisions by the decision-maker [7-11].

Monitoring equipment lending, i.e. the participation of loan beneficiaries, equipment lending, the minimum loan amount has an increasingly important significant influence on interest rates, which must be considered as an important starting point in the management of medium-sized agricultural enterprises within the framework of credit policy in Serbia [12-17].

In addition, the role and great importance of the application of IT within the overall credit policy regarding the procurement of agricultural machinery, which confirms the existence of essential differences, essentially refers to the modern management of one of the most important forms of organization in agriculture [18-22].

MATERIALS AND METHODS

Statistical data processing and analysis were done using the software IBM SPSS (Statistical Package of Social Science) version 25.

The survey included 118 documents with the use of IT assistance and 128 documents without the use of IT in a process that comprehensively covers the processes of crediting agricultural machinery in medium-sized agricultural enterprises in the Republic of Serbia.

The evaluation was carried out by top managers in the interval 1-10, with the least confidence being 1, and the highest rating being 10. The research period was December 1-30, 2025.

In the paper, the t-test of independent samples was applied to examine the difference between medium-sized agricultural enterprises that use IT and those that do not in the process of lending agricultural machinery from the point of view of the security of business decision-making.

Factors were analyzed: interest rates, credit-flow management, repayment, participation in loans, agricultural lending, adjustments to repayment of machinery, in total.

A regression analysis was performed, which was applied to predict the interest rate, based on the factors of loan management-flow, repayment and participation in loans, agricultural lending and adjustments to repayment of machinery.

At the same time, the threshold value of significance was at the level of 0.05.

RESEARCH RESULTS AND DISCUSSIONS

The business of purchasing agricultural machinery is mostly carried out with the existence of a credit relationship in the work of especially medium-sized agricultural companies.

The modern approach implies the application of IT technological support, which was the basis for obtaining the presentation of the research results that are present in the presentation of Table 1.

Table 1. Policy management of crediting agricultural machinery in medium-sized agricultural enterprises with and without the help of IT for 2025.

	With the use of IT support	Without IT help		
	Average value		t	p
Interest rates	9.01 ± 0.55	6.40 ± 0.48	36.369	<0.0005*
Credit flow management	9.59 ± 0.48	7.24 ± 1.15	17.041	<0.0005*
Repayment	7.58 ± 0.47	6.20 ± 4.07	4.211	<0.0005*
Participation in loans	9.45 ± 0.50	8.65 ± 0.85	8.194	<0.0005*
Lending of agricultural machinery	9.01 ± 0.62	4.75 ± 0.71	48.103	<0.0005*
Repayment adjustments	7.56 ± 0.70	9.79 ± 0.42	24.358	<0.0005*
Total score	63.21 ± 4.97	64.01 ± 2.65	-1.269	0.122

Based on the results shown in Table 1, the performance of medium-sized agricultural enterprises can be seen in relation to the results obtained with or without the application of IT in the process of overall consideration of the importance of individual organizational factors.

After displaying the results in Table 1, it can be seen that there are differences in lending conditions with or without IT assistance for 2025. In the following, a multiple linear regression was applied to examine whether, based on the analyzed factors, we can predict the influence of the interest rate factor in the process of crediting agricultural machinery by purchasing it from a loan Table 2.

Table 2. Prediction of the interest rate in relation to the analyzed factors of agricultural machinery lending

	Beta	t	p
Constant	-	11.903	<0.0005*
Credit flow management	-0.026	-1.070	0.279
Repayment	0.165	4.396	<0.0005*
Participation in loans	0.067	1.805	0.069
Lending of agricultural machinery	0.275	6.201	<0.0005*
Repayment adjustments	0.105	2.629	0.009*

The level of the interest rate can be predicted based on the independent variables since the model is statistically significant ($F=185.22$, $p<0.0005$).

Based on the results shown in Table 2, it can be seen that loan repayment, lending of agricultural machinery, i.e. equipment, have a significant impact on the analyzed factor, i.e. the interest rate factor that occurs in the operation of medium-sized agricultural enterprises within the framework of credit policy in Serbia.

The results shown in Table 1 clearly indicate that there is a great importance of the application of IT within the overall credit policy regarding the purchase of agricultural machinery, which confirms the existence of significant differences $p<0.0005$ for all analyzed factors.

All of this is reinforced based on the presentation of Table 2, i.e. predicting the interest rate based on the other analyzed factors is possible, i.e. it can be seen that there is a significant influence on the analyzed interest rate factor.

CONCLUSION

Realistic observation of valued agricultural machinery is more influenced by the credit ratio in relation to joint investments in the procurement of agricultural machinery.

After reviewing the study and the results reached by its authors, the existence of the following important points regarding the crediting of agricultural technology in the work of medium-sized agricultural enterprises is clearly seen.

First, there are significant differences in the first stage of crediting, that is, in the preparation of documentation, because the top management has more confidence in the fact that the documentation was prepared with the help or with the use of IT, as opposed to the one that was prepared without such support for all analyzed factors.

Other factors such as the participation of loan beneficiaries, equipment lending and the minimum loan amount have a significant impact on the analyzed factor (that is, the same can be predicted) of the interest rate that occurs in the operation of medium-sized agricultural enterprises within the framework of the credit policy in Serbia.

The essential factor of the interest rate can be predicted on the basis of independent variables since the model is statistically significant ($F=185.22$, $p<0.0005$) which shows as an important conclusion the essence of the study, which, apart from the theoretical approach, has practical managerial significance, especially since the results refer to the work of medium-sized agricultural enterprises in Serbia.

CONFLICT OF INTEREST

None is declared

BIBLIOGRAPHY

[1] Popović, S., Bakmaz, O., Popović, D., Dragosavac, M., Nastić, S., Pajović, I., Majstorović, A., Sredojević, D., Radaković, M. Petković, Z. 2025. Valuation of agricultural land in relation to location of city centers as a factor in the management of mentioned resource, *Agriculture & Forestry*, Vol. 71(1), pp. 99-113.

[2] Arnautović, I., Davidov, T., Nastić, S., Popović, S. 2022. Značaj donošenja racionalne poslovne odluke top menadžmenta u poljoprivrednim preduzećima u Republici Srbiji, *Poljoprivredna tehnika*, Vol. 47(3), pp.1-8.
[3] Popović S, Jovin S, Đuranović D, Popović V, Filipović V, Munitlak-Ivanović O, Grublješić Ž., Mijić R. 2017. The Importance of Planting Pot Marigolds (Calendula officinalis L.) in degraded public spaces from the agro-ecological and economic perspective. *Contemporary Agriculture*, Vol. 66(1-2), pp. 27-31.
[4] Arnautović, I., Davidov, Tatjana, Nastić, Sanda, Popović, S. 2022. Značaj poslovnog odlučivanja top menadžmenta u poljoprivrednom preduzeću koja koriste praktičnu primenu novih pristupa softverskih rešenja IT sektora u Republici Srbiji, *Poljoprivredna tehnika*, Vol. 47(2), pp. 51-57.
[5] Popović, S., Laban, B., Vukasović, D., Ivić, M., Nastić, S. & Popović, V. 2018. Internal and external audit as a factor in improving the management of the Agricultural enterprise, *Poljoprivredna tehnika*, Vol. 43(4), pp. 8–12.
[6] Bakmaz, O., Vukčević, V., Laković, D., Arnautović, I., Nastić, S., Krstajić, G. & Popović, S. 2025. Modern Management of Medium-sized Agricultural Enterprises and Reporting in English on Recent Change, *Journal of Agronomy, Technology and Engineering Management*, 8(1), pp.1429-1436.
[7] Lutovac, J., Zimonjić, M., Popović, S. 2024. Financial reporting within the business of heterogeneous companies as a basis for making valid business decisions, *Megatrend revija*, Vol. 21(2), pp. 1-8.
[8] Tomas-Miskin S., Vitomir, J., Popović, S., Vitomir, G. 2022. Decision-making of Top Management and Internal Audit on the Issue of Archiving Documentation in Companies Founded by Local Government Units in the Republic of Serbia, *Lex Localis – Journal of Local Self-Government,* Vol. 20(4), pp. 889 – 995.
[9] Radović, M., Vitomir, J., Popović, S. 2021. Kretanje dokumentacije u sklopu revizijskog izveštavanja top menadžmenta poljoprivrednog preduzeća, *Poljoprivredna tehnika,* Vol. 46(1), pp. 47-53.
[10] Radović, M., Vitomir, J., Popović, S. & Stojanović, A. 2023. The Importance of Establishing Financial Valuation of Fixed Assets in Public Companies who's Founders Are Local Self-Government Units in the Republic of Serbia, *Enginering Economics*, Vol. 34(3), pp. 246-255.
[11] Sredojević, D., Dragosavac, M. and Popović, S. 2025. Applications of IT Systems and Digitalization to Optimize Energy Efficiency in Business Enterprises, International Journal of Digital Waste Engineering–2025, 2 (1), 1-4.
[9] Bakmaz, O., Eremić-Đođić, J., Dragosavac, M., Sredojević, D., Dejanović, A., Arnautović, I., Krstajić, G. & Popović, S. (2025). Financial Management of Small and Medium–sized Farms using State Subsidies, IT System of Records for Genetic Resources: Example of Republic of Serbia. *J Agron Technol Eng Manag*, *8*(2), pp. 1562-1572.
[10] Bakmaz, O., Bjelica, B. & Vitomir, J. 2023. Application of software solutions in companies that strive to achieve increased financial stability in their regular business, *Temel-IJ*, 7:1, pp.13 – 20.
[11] Popović, S. 2018. Modeling a strategic top management in the importance of the management of the finance companies established for the establishment of fer value, *Poljoprivredna tehnika*, Vol. 43(2), pp. 11–16.
[12] Popović, S., Vitomir, J., Tomaš-Miskin, S., Davidov, T., Nastić., S., Popović, V., Popović, D., Vitomir, G. 2021. The importance of a realistically determined amount of tax on property rights relating to the ownership of agricultural land in the Republic of Serbia adopted by tax authorities of local selfgovernment units, *Ekonomika poljoprivrede*, Vol. 4, pp. 1029-1042.
[13] Jokić, Maja, Popović, D., Popović, S., 2020. Značaj pripreme revizijskog izveštaja za top menadžment poljoprivrednog preduzeća, *Poljoprivredna tehnika*, Vol.45 (2), pp. 21-27.

[14] Radović, M., Vitomir, J., Laban, B., Jovin, S., Nastić, S., Popović, V., Popović S. (2019). Management of joint-stock companies and farms by using fair value of agricultural equipment in financial statements on the example of IMT 533 tractor, *Economics of Agriculture*, Vol. 1. pp. 35-50.
[15] Vitomir, J., Radović, M. & Popović, S. 2021. The Effect of Public Finance Control on the Improvement of Work of Internal Auditors in Enterprises Founded by the Local Self-government Units on the Example of the Republic of Serbia, *Lex localis - Journal of Local Self-Government*, Vol. 19(2).
[16] Jokić, M., Laban, B., Arnautović, I., Popović, D., Popović, S. 2020. The importance of preparing an internal audit report in reporting to top management of a company that makes key management decisions in its work, *Annals*, Vol. 2, pp. 1-8.
[17] Popović, S., Arnautović, I. & Krstajić, G. 2025. Realistic financial reporting and management of primary health care in Serbia, *Trendovi u poslovanju*, 25(1), pp. 107-116.
[18] Bakmaz, O., Bjelica, B., Vitomir, J. 2023. Application of internal audit in processes of reducing corruption in a transitional economy like the republic of Serbia, *Temmel-ij*, Vol.7 (1), pp.36-42.
[19] Sredojević, D., Dragosavac, M. & Popović, S. 2025. Application of Innovative IT Systems to the Overall Development of Business in an Economy Such as The Republic of Serbia, *Journal of Sport Industry & Blockchain Technology*, 2(1), pp. 9-12.
[20] Radović, M., Vitomir, J., Laban, B., Jovin, S., Nastić, S., Popović, V., Popović S. 2019. Management of joint stock companies and farms by using fair value of agricultural equipment in financial statements on the example of IMT 533 Tractor, *Economics of Agriculture*, Vol. 1, pp. 35-50.
[21] Lutovac, J., Tomaš-Miskin, S.,Popović, S. 2025. Obtaining loans for energy efficiency depending on the influence of analyzed factors on the decision-making of citizens and small businesses in the Republic of Serbia, *International Review*, No.1-2, pp. 173-181.
[22] Jovanović, S., Đokić, S., Popović, S. 2025. Procurement of agricultural mechanism through IPARD measure-1, and application of marketing in the meaning of explaining the profitability of investments by the advisory service, *Poljoprivredna tehnika*, 50(2), pp. 1-6.

KREDITIRANJE POLJOPRIVREDNE MEHANIZACIJE SA ILI BEZ PODRŠKE IT U PRIPREMI DOKUMENTACIJE ZA POSLOVANJE U SREDNJIM POLJOPRIVREDNIM PREDUZEĆIMA

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Abstrakt: Kreditiranje je jedan od bitnih načina kupovine poljoprivredne mehanizacije. To je od naročite važnosti za poslovanje srednjih poljoprivrednih preduzeća koja treba da uvaže kompleksno posmatanje brojnih faktora uticaja, pre svega uticaja na formiranje visine kamatnih stopa kao pokretača svih nabavki, pre svega opreme.

Ustanovljeno je da postoji bitna razlika ukoliko se dokumentacija koja je urađena za potrebe dobijanja kredita prethodno kontrolisana IT sistemima podrške u odnosu na dokumentaciju gde nije postojala kontrola putem IT.
Osim toga najveći uticaj pojedinačnih faktora na kreditiranje imaju faktori: vođenje kredita odnosno kreditnog toka, učešća u kreditima i kamatne stope u okviru ukupnog sagledavanja nabavki poljoprivredne mehanizacije u redovnom poslovanju srednjih poljoprivrednih preduzeća.
Sve to je osnaženo na način da se utvrdilo da je moguće izvršiti predviđanje kamatne stope putem ostalih analiziranih faktora a naročito otplata kredita i kreditiranje poljoprivredne mehanizacije odnosno opreme, jer isti imaju značajan uticaj na analizirani faktor kamatne stope ($p<0.0005$).
Dobijene su vrednosti visine kamatne stope suštinski se može predvidi na osnovu nezavisnih varijabli pošto je model statistički značajan ($F=185.22$, $p<0.0005$) te se na taj način može posmatrati ukupnog procesa kreditranja poljoprivredne mehanizacije u funkcionisanju srednjih poljoprivrednih preduzeća.

Ključne reči: *Kreditiranje, poljoprivredna tehnika, poslovno odlučivanje.*

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