THE IMPACT OF DIGITALIZATION AND REGULATIONS ON MERGERS AND ACQUISITIONS

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Abstract

In the context of accelerated globalization of the economy, companies are constantly applying methods of adaptation, development and diversification of operations. External growth through mergers and acquisitions, as a rapid way of expansion, is impacted by technological and regulatory developments. The paper aims to provide an overview of the impact of digital societies and constantly changing regulations on mergers and acquisitions. The impact is captured through multiple linear regressions with panel data collected from databases such as the World Bank Development Indicators, European Commission, and Eurostat Database, for developing countries in Central and Eastern Europe. The estimation of the coefficients was carried out using the Ordinary Least Squares method.

The results showed a significant negative impact of the Digital Economy and Society Index on mergers and acquisitions. At the same time, an insignificant influence of the quality of government regulations is noted. Moreover, by delving deeper into the components of the Digital Economy and Society Index, we found a significant positive influence of Digital Technology Integration as well as a negative impact of Human Capital and Connectivity on mergers and acquisitions.

Keywords

Mergers and Acquisitions, Digital Economy and Society Index, Government regulations, Digital technology, Connectivity

JEL Classification

G34 , O33, O38

Introduction

In a dynamic and competitive economic environment, companies are looking for ways to diversify their product portfolios and strengthen their competitive position. Mergers & Acquisitions (M&A) are strategic tools used by companies to rapidly expand markets and develop their business. These processes change the economic structure through the transfer of ownership and resources. At the same time, mergers and acquisitions also

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involve challenges related to cultural, organizational, regulatory integration and synchronization with technological evolution.

The purpose of the research is to assess the influence of digitalization and constantly changing regulations on the occurrence of mergers and acquisitions in Central and Eastern European countries, members of the European Union.

This study contributes to the economic literature by exploring a current and less addressed topic among developing countries in Central and Eastern Europe, EU members, namely the interaction between digitalization, regulatory quality and mergers and acquisitions activity. In an era dominated by rapid digital transformations and constantly changing regulations, understanding how these elements influence the processes of firm consolidation is useful in formulating public policies, adapting corporate strategies and optimizing the investment environment in the European Union.

By integrating the Digital Economy and Society Index and the regulatory quality, the study contributes to identifying the main factors determining the attractiveness of the market for M&A transactions in the context of digital transition and new regulations. The research questions focus on identifying the impact of the overall level of digitalization on the number of M&As and to what extent the quality of regulations influences mergers and acquisitions activity. It also investigates which dimensions of DESI have the greatest relevance for M&A.

The paper is structured in the following sections: Literature Review, Methodology, Results and Discussion, Conclusions and Bibliography.

The review of the specialized literature shows that digitalization reduces transaction costs and facilitates mergers and acquisitions. Institutional and regulatory quality determines investor confidence and drives mergers and acquisitions. The data and methodology used in the research develop the research approach that tests, through the Ordinary Least Squares method, primarily tests the impact of the Digital Economy and Society Index (DESI) and the Quality of Government Regulations on mergers and acquisitions. The DESI index is a composite index that measures the level of digitalization for the member countries of the European Union. The Quality of Regulations is an index that expresses the efficiency and applicability of the laws and regulations of the states. In the second part, the dimensions of the DESI Index are tested, namely Connectivity (access to the internet), Human Capital (digital knowledge), Digital Technology Integration (technology adoption in companies) and Digital Public Services (digital presence of public services).

The paper concludes with a synthesis of the most important conclusions, research limitations and future research directions.

1. Review of the scientific literature

Both digitalization and government regulations have been studied over time in the context of external growth strategies of companies through mergers and acquisitions.

The specialized literature primarily notes the beneficial role of digitalization for mergers and acquisitions operations (table no. 1). Before the transaction is concluded, digitalization facilitates high asset valuations, favoring competition, and with the digitalization of business models, mergers and acquisitions are stimulated (Hollett and Phasey, 2019; Ramaszanov et al., 2021; Bittel, 2022).

Table no. 1. Synthesis of the specialized literature on the impact of digitalization on M&A

Author	Year	Outcomes
Hollett and Phasey	2019	Digitalization facilitates large asset valuations before M&A closes.
Furber	2021	The pandemic context slowed down M&A, but boosted mergers and acquisitions of fintech companies.
Hanelt et al.	2021	Traditional companies resort to digital mergers and acquisitions, but they must also be accompanied by learning for the transaction to be successful.
Ramazanov et al.	2021	Digitalization fosters competition, thus stimulating M&A.
Basavaraju and Tailor	2022	Digitalization of M&A is amplifying cyberattacks, as companies are moving towards digital capabilities, along with digital know-how. M&A must focus on digital success, value chain digitization, and digital service delivery.
Bittel	2022	The digitalization of business models acts as an incentive in carrying out mergers and acquisitions.
Kraievskyi, Kolisnyk and Skoryk,	2024	Thanks to digitalization, companies have the opportunity to integrate different business structures through mergers and acquisitions.
Chang and Liu	2025	Digitally vulnerable companies identify those complementary industries that can offer them the complementary pooling of resources and capabilities to conquer the industry.

Source: Author's elaboration based on specialized literature

In contrast to these benefits, some aspects make it difficult for companies to adopt digitalization. Disadvantaged retailers must build their advantages with additional effort and changes in price, quality, market share, access to different markets and acquisitions of companies based on various applied digital technologies. The effort of the transition from physical to digital must be accompanied by learning from the acquirer, not just acquisition, to cope with continuous technological progress and new technological paradigms (Hanelt et al., 2021; Ramazanov et al., 2021)

Digitalization of M&A amplifies cyberattacks, as companies focus on digital capabilities, along with digital know-how. M&A must focus on digital success, value chain digitization, and digital service delivery (Basavaraju and Tailor, 2022).

The challenge, however, arises for small companies that need to maintain their competitiveness permanently, having to keep up with digitalization by using modern digital tools and new information systems for which professional development of employees is necessary. Digitally vulnerable companies identify those complementary industries, which can offer them a complementary grouping of resources and capabilities in order to conquer the industry (Kraievskyi, Kolisnyk and Skoryk, 2024; Chang and Liu, 2025).

Specialized literature related to regulations and their role in the markets, they are implemented with the aim of providing security and stability and at the same time encouraging the competitiveness between companies (table no. 2). In addition to the favorable aspects, regulations also attract unfavorable externalities embodied in compliance costs, which involve information, capital and reporting expenses. Their

amount varies, being established based on the size and location of the company, the industry of activity.

Table no. 2. Synthesis of the specialized literature on the impact of regulations on M&A

Author	Year	Outcomes
Wigger	2012	The role of supranational regulations has been to facilitate concentrations through mergers and acquisitions.
Fich, Griffin and Kalmenovitz	2021	Numerous regulations predispose companies to engage in more M&A, with higher long-term performance.
Balogh, Creedy and Wright	2022	Private firms have lower regulatory costs, which allow them to engage in more procurement.
Ince	2024	To reduce regulatory costs, large companies resort to acquisitions in the same industry, of companies already subject to those or similar regulations.

Source: Author's elaboration based on specialized literature

The role of supranational regulations has consisted in facilitating concentrations through mergers and acquisitions, whereas the numerous regulations predispose companies to involvement in more M&A, initiating a higher number of acquisition offers, as a result of which the yield obtained in the long term is also higher (Wigger, 2012; Fich, Griffin, and Kalmenovitz, 2021).

Regulatory costs of private firms are lower, which allows them to engage in more acquisitions, The level of costs assumed by the regulations is substantial regardless of salesand to reduce these costs, large firms in particular, resort to acquisitions in the same industry, but of companies that are already subject to the same or similar regulations (Balogh, Creedy and Wright, 2022; Ince, 2024).

2. Research methodology

The objective of the paper is to empirically analyze the implications of digitalization and regulations on the performance of mergers and acquisitions. The sample used consists of developing countries in Central and Eastern Europe, which are part of the European Union, namely: Bulgaria, the Czech Republic, Croatia, Poland, Romania, Slovakia, and Hungary.

The panel data covers the period 2016-2023, being automatically collected with an annual frequency from the World Bank (Development Indicators, DataBank), European Commission, Eurostat Database, Institute for Mergers, Acquisitions and Alliances.

The analysis focuses on two econometric models. The estimation of the coefficients in both cases is carried out through multiple linear regressions, applying the OLS (Ordinary Least Squares) method, to capture both the variation over time and between states. In the case of the first model, we test the impact of the Digital Economy and Society Index (DESI) and the Quality of Regulations (REG) on mergers and acquisitions. The second model explores the impact of the components of the Digital Economy and Society Index, namely Connectivity, Digital Public Services, Human Capital and Digital Technology

Integration, on M&A. The variables have been standardized to contribute equally to the analysis, regardless of their measurement scale.

The variables used in the first model (table no. 3) are Mergers and Acquisitions (MA), as a dependent variable. It is expressed as the annual number of M&A transactions. The Digital Economy and Society Index (DESI), as an independent variable, is a composite index focused on the evolution of digital performance in Europe. The second independent variable, Regulatory Quality (REG), captures the government's capacity to develop the private sector by implementing sound regulations. It is constructed in the form of a ranking, with 0 being assigned to the lowest rank and 100 being the highest.

The selection of the analysis method and variables was based on the specialist analysis but also on the research objectives, namely, examining the relationship between the level of digitalization, the quality of regulations and mergers and acquisitions activity in developing countries that are members of the European Union.

Table No. 3. Description of the dependent variable and independent variables for the first linear regression model

Variable	Symbol	Calculation method	Data source
Dependent variable			
Mergers and Acquisitions Operations	MA	The annual number of mergers and acquisitions	Institute for mergers, acquisitions and alliances
Independent variables			
Digital Economy and Society Index	DESI	Weighted score 1-100	European Commission, Digital Decade DESI
Quality of Government Regulations	REG	Rank 0-100	World Bank
Control variables			
Value of Mergers and Acquisitions transactions	VAL	Annual value of mergers and acquisitions in billion USD	Institute for mergers, acquisitions and alliances
GDP per capita growth rate	GDP	Annual growth rate of the ratio between GDP and the number of inhabitants	World Bank
Foreign Direct Investment	FDI	Cash inflows from foreign investment as a percentage of GDP	World Bank
Inflation Rate	INF	Annual growth rate of the Harmonized Index of Consumer Prices	Eurostat

Source: Author's elaboration based on specialized literature

For the first multiple linear regression model, we estimate the following model:

$$MA_{i,t} = \alpha_0 + \beta_1 DESI_{i,t} + \beta_2 REG_{i,t} + y_1 VAL_{i,t} + y_2 GDP_{i,t} + y_3 FDI_{i,t} + y_4 INF_{i,t} + \varepsilon i,t \quad (1)$$

where   MA represents the number of mergers and acquisitions of country i in year t;
          βx - represents the set of independent variables;

yx - represents the control variables;

ε - represents the standard error.

The second multiple linear regression model tests the impact of the components of the Digital Economy and Society Index on mergers and acquisitions (table no. 4). The components are Connectivity (CONN), Digital Public Services (DPS), Human Capital (HC) and Digital Technology Integration (IDT).

Connectivity measures internet access and the quality of network infrastructure. Digital Public Services reflect the public services needed to start a business and their online availability. Human Capital measures individuals' digital skills and the ability to use and develop digital technology. Digital Technology Integration quantifies the degree of integration of digital technologies in companies to assess the companies' capacity for innovation and digital expansion.

Table No. 4. Description of the dependent variable and independent variables for the second linear regression model

Variable	Symbol	Calculation method	Data source
Dependent variable			
Mergers and Acquisitions	MA	The annual number of mergers and acquisitions	Institute for mergers, acquisitions and alliances
Independent variables			
Connectivity	CONN	Weighted score 1-100	European Commission, Digital Decade DESI
Digital Public Services	DPS	Weighted score 1-100	European Commission, Digital Decade DESI
Human Capital	HC	Weighted score 1-100	European Commission, Digital Decade DESI
Digital Technology Integration	IDT	Weighted score 1-100	European Commission, Digital Decade DESI

Source: Author's elaboration based on specialized literature

For the second multiple linear regression model, we estimate the following model:

$$MA_{i,t} = \alpha_0 + \beta_1 CONN_{i,t} + \beta_2 DPS_{i,t} + \beta_3 HC_{i,t} + \beta_4 IDT_{i,t} + \varepsilon i,t \qquad (2)$$

where   MA represents the number of mergers and acquisitions of country i in year t;

βx - represents the set of independent variables;

ε - represents the standard error.

3. Results and discussion

The first multiple linear regression model tests the impact of the Digital Economy and Society Index (DESI) and Regulatory Quality (REG) on Mergers and Acquisitions (M&A). In addition, the M&A Value (VAL), Inflation Rate (INF), GDP per capita (GDP) and Foreign Direct Investment (FDI) are taken into account.

Table No. 5. Descriptive statistics for the first linear regression model

	Mean	Std. Deviation	Min.	Max.
(MA)	123.19	1.0159	28	323
(VAL)	5.21	1.0526	0.51	18.68
(REG)	64.94	.9550	61.8	97.7
(DESI)	22.2	1.0000	19.3	49.1
(INF)	4.44	.9258	-1.3	17
(GDP)	3.01	1.1076	-7.4	13.6
(FDI)	5.15	1.0345	-40.2	106.4

Source: Author's own analysis in SPSS Statistics

The descriptive statistics of the variables used in the research illustrate Mergers and Acquisitions as having an average of 123 operations, with a minimum of 28 operations and a maximum of 323 M&As. Their value is on average at 5.21 billion USD, with a minimum of 0.51 and a maximum of 18.68 billion USD (table no. 5).

The quality of government regulations, measured in percentile rank from 1 to 100, has an average of 64.94, with a standard deviation of 0.95. The minimum is located at 61.8 while the maximum is 97.7. The small distance between the average and the minimum suggests the presence of numerous low values and a few extremes.

The DESI index, measured as a score between 1-100, takes values between a minimum of 19.3 and a maximum of 49.1. The average of 22.2 shows the presence of several values close to the minimum. The inflation rate has an average change of 4.44 percent, with a minimum of -1.3 and a maximum increase of 13.6 percent. GDP per capita has an average change of 3.01%, with a minimum decrease of -7.4% and a maximum increase of 13.6%. Foreign direct investment has an average of 5.15%, with a minimum of -40.2%, a maximum of 106.4% and a standard deviation of 1.034.

Table No. 6. Selection of causality of variables through the Granger test

Dependent variable: DESI

Excluded	Chi-sq	df	Prob.
MA	1.413841	2	0.4932
All	1.413841	2	0.4932

Dependent variable: MA

Excluded	Chi-sq	df	Prob.
DESI	4.905721	2	0.0860
All	4.905721	2	0.0860

Dependent variable: MA

Excluded	Chi-sq	df	Prob.
REG	4.675911	2	0.0965
All	4.675911	2	0.0965

Dependent variable: REG

Excluded	Chi-sq	df	Prob.
MA	1.989990	2	0.3697
All	1.989990	2	0.3697

Source: Author's own analysis in SPSS Statistics

The selection of the causality of the variables was carried out by applying the Granger causality test (table no. 6). According to it, mergers and acquisitions were used as an independent variable and the DESI Index and the Quality of Government Regulations were used as independent variables at a significance level of 10%.

The correlation matrix shows that there is a strong positive correlation between the Transaction Value and M&A operations, respectively, the increase in the transaction value also determines the multiplication of M&A operations (table no. 7). A positive, but weak, correlation also occurs at the level of Regulatory Quality, Inflation and GDP with M&A operations. Weak negative correlations with M&A are at the Digital Economy and Society Index and Foreign Direct Investment, their increase determining the decrease in M&A operations.

The correlations with the Value of transactions are mainly weak positive, the increase in the Quality of regulations, the DESI Index, Inflation and GDP also determining the increase in the Value of transactions. However, the increase in Foreign Direct Investments determines the decrease in the Value of transactions, a weak negative correlation. The weak positive correlation of the DESI Index with government regulations determines an increase in the Economy and Digital Society Index and an increase in the Quality of regulations.

Table No. 7. Correlation matrix for the first linear regression model

	Z(MA)	Z(VAL)	Z(REG)	Z(DESI)	Z(INF)	Z(GDP)	Z(FDI)
Z(MA)	1						
Z(VAL)	.690**	1					
Z(REG)	.273*	.443**	1				
Z(DESI)	-.256	.075	.292	1			
Z(INF)	.028	.120	-.062	.568**	1		
Z(GDP)	.114	.114	-.158	-.022	.000	1	
Z(FDI)	-.070	-.172	-.046	.100	-.156	-.135	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Source: Author's own analysis in SPSS Statistics

The weak negative correlations of Inflation, GDP, Foreign Direct Investments with the Quality of government regulations indicate the nonlinear relationship between them, generating a decrease in the Quality of regulations. The strong positive correlation between Inflation and the DESI Index shows the linear relationship between the indicators. The same relationship, but with a weak positive correlation, is found between Foreign Direct Investments and DESI. GDP growth, on the other hand, generates a decrease in the DESI Index, the correlation between the indicators being weakly negative. With Inflation, GDP per capita is in a weak positive relationship, while Foreign Direct Investment has a weak negative correlation. GDP growth determines the increase in Inflation, and the increase in Foreign Direct Investment generates a decrease in Inflation. The weak negative correlation existing between Foreign Direct Investment and GDP generates a nonlinear relationship between them.

Table No. 8. ANOVA test for the first linear regression model

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	28.875	6	4.812	12.532	.000[b]
1	Residual	13.441	35	.384		
	Total	42.316	41			

a. Dependent Variable: Zscore(MA)

b. Predictors: (Constant), Zscore(FDI), Zscore(INF), Zscore(REG), Zscore(GDP), Zscore(Val), Zscore(DESI)

Source: Author's own analysis in SPSS Statistics

According to the results obtained from the testing (tables no. 8, 9), the model is statistically significant ($F_{(6, 41)}$=12.53; p<.001), explaining 68.2% of M&A variance (R2).

Table No. 9. Summary of the first multiple linear regression model

R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
				R Square Change	F Change	df1	df2	Sig. F Change
.826[a]	.682	.628	.6196	.682	12.532	6	35	.000

a. Predictors: (Constant), Zscore(FDI), Zscore(INF), Zscore(REG), Zscore(GDP), Zscore(Val), Zscore(DESI)

Source: Author's own analysis in SPSS Statistics

The correlation between the predicted and actual values (0.826) is strong, the value being close to 1. The Sig value < 0.001 shows that the model has very high explanatory power at a significance level of 1%.

Table No. 10. Empirical results for the first linear regression model

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
	(Constant)	-.009	.096		-.095	925		
	Z(**DESI**)	-.490	.134	-.482	-3.648	.001***	.520	1.923
	Z(REG)	.044	.138	.042	.319	.752	.536	1.867
1	Z(**VAL**)	.707	.116	.733	6.114	.000***	.632	1.583
	Z(**INF**)	.306	.139	.279	2.196	.035**	.564	1.774
	Z(GDP)	-.026	.095	-.029	-.277	.784	.853	1.172
	Z(FDI)	.003	.098	.003	.026	.979	.917	1.090

a. Dependent Variable: Zscore(MA)

***,** and * Variables are significant at a significance level of 1%, 5%, 10%

Source: Author's own analysis in SPSS Statistics

According to the results of the econometric testing (table no. 10), statistically significant influence is exerted by the DESI Index and the Transaction Value at a significance threshold of 1% and by the Inflation Rate at a threshold of 5%. The increase in DESI determines the decrease in Mergers and Acquisitions, while the increase in the Transaction Value and the Inflation Rate increases the production of mergers and acquisitions operations. However, these decrease with the increase in digitalization as compliance costs increase for companies involved in M&A, especially for traditional sectors such as industry, resources, and investors, who are thus less willing to invest in conditions of insufficient digitalization.

The positive impact of the transaction value is based on the fact that it reflects investors' confidence in the profitability of the market, stimulating large M&A transactions. The market is thus consolidated, in a favorable economic environment, with attractive financing and assets. The positive impact of inflation is noticeable when it reduces the real value of debts within moderate limits and increases the attractiveness of debt-financed transactions. On the other hand, it can generate lower company valuations, making them attractive to acquirers. If companies need liquidity, the sale of companies is encouraged, implicitly M&A activity.

The insignificant impact of the Quality of government regulations may be due to the instability of regulations or their reduced enforcement, given that companies also seek ways to avoid regulations. Also, the relevance of the Index for investors may have a minimal impact on the investment decision, taking into account market opportunities and economic factors.

Collinearity between variables is checked by the Tolerance and VIF tests. According to Tolerance, with values greater than 0.1, there is no problematic collinearity, while VIF located around 1 shows the lack of collinearity between variables.
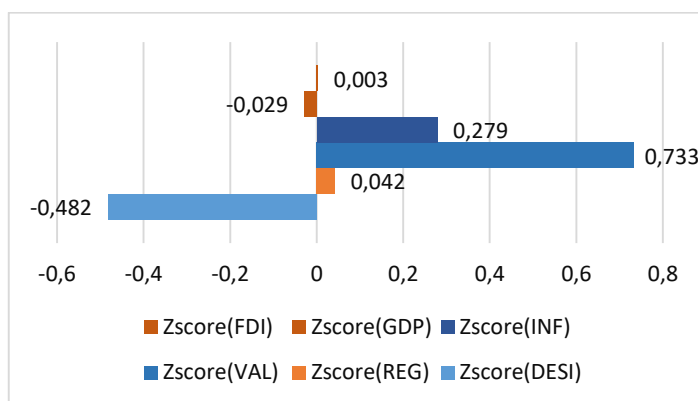
Figure no. 1. Graphical representation of the coefficients of the first regression model
Source: Author's own elaboration

Statistically significant influence is manifested according to figure no. 1, the blue variables, respectively, DESI Index with negative impact, Transaction Value and Inflation with positive impact. The negative influence of DESI on M&A is due to the high digitalization of countries with mature and consolidated markets that do not engage in mergers, or stricter digital regulations that may discourage foreign investments.

The second linear regression model deepens the components of the Digital Economy and Society Index (DESI), namely: Digital Public Services (DPS), Human Capital (HC), Digital Technology Integration (IDT) and Connectivity (CONN). The impact of the Index components on Mergers and Acquisitions (M&A) operations is tested. The descriptive statistics for the second model, also shown in Table 11, highlight for mergers and acquisitions operations a minimum of 28 operations, an average of 120 and a maximum of 323 M&As.

Table No. 11. Descriptive statistics for the second linear regression model

	Mean	Min	Max
Zscore(MA)	120.8	28	323
Zscore(DPS)	41.2	7.4	64.4
Zscore(HC)	37.8	27.4	51.8
Zscore(IDT)	20	10.1	36.7
Zscore(CONN)	34	19.6	57.6

Source: Author's own analysis in SPSS Statistics

Digital Public Services have an average of 41.2, very close to the maximum of 64.4, which highlights a few values located towards the minimum of 7.4. The Human Capital average of 37.8 suggests many values close to the minimum of 27.4 and fewer than the maximum of 51.8. Digital Technology Integration records a minimum of 10.1, a maximum of 36.7 and an average of 20, while for Connectivity the average is 34, with variations between the minimum of 19.6 and the maximum value of 57.6.

Connectivity, Digital Public Services, Human Capital and Digital Technology Integration show a negative, weak correlation with Mergers and Acquisitions, an increase in them determining a decrease in mergers and acquisitions operations. There is also a weak negative correlation between Human Capital and Connectivity (table no. 12).

Table No. 12. Correlation matrix for the second linear regression model

	Z(MA)	Z(CONN)	Z(DPS)	Z(HC)	Z(IDT)
Zscore(MA)	1				
Zscore(CONN)	-.042	1			
Zscore(DPS)	-.181	.228	1		
Zscore(HC)	-.396**	-.003	.613**	1	
Zscore(IDT)	-.237	.253	.631**	.892**	1

Source: Author's own analysis in SPSS Statistics

The weak positive correlation of Digital Public Services and Digital Technology Integration with Connectivity determines an increase in connectivity. There is a strong

positive correlation between Human Capital, Digital Technology Integration and Digital Public Services, with the increase in Human Capital and Digital Technology Integration determining the evolution in the same direction of Digital Public Services. The same linear relationship is found at the level of Digital Technology Integration and Human Capital, with a very strong positive correlation.

Table No. 13. ANOVA test for the second linear regression model

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	11.464	4	2.866	3.590	.014[b]
2	Residual	29.536	37	.798		
	Total	41.000	41			

a. Dependent Variable: Zscore(MA)
b. Predictors: (Constant), Zscore(CONN), Zscore(HC), Zscore(DPS), Zscore(IDT)
Source: Author's own analysis in SPSS Statistics

The results of the ANOVA test (table no. 10) illustrate that the second regression model explains significantly the variation in the data. The F-test value (F=3.590) suggests that the model is significant (there is at least one group that has a significantly different mean from the others). According to the sig value (0.014) the regression model is statistically significant for a significance level of 5%.

Table no. 14. Summary of the second linear regression model

R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
				R Square Change	F Change	df1	df2	Sig. F Change
.529[a]	.280	.202	.8934	.280	3.590	4	37	.014

a. Predictors: (Constant), Zscore(CONN), Zscore(HC), Zscore(DPS), Zscore(IDT)
Source: Author's own analysis in SPSS Statistics

The summary of the model (table no. 14), shows by R (0.529) the moderate correlation between the predicted and actual values, while R Square shows that 28% of the variation of the dependent variable is explained by the regression model. According to Sig < 0.05, the model is statistically significant.

The results of the second regression model (table no. 15) showed that HC (t= -3.37; p=.002), IDT (t=2.39; p=.02) and CONN (t=-1.69; p=.09) significantly predict M&A. The increase by one unit of Human Capital determines the decrease in mergers and acquisitions for a significance level of 1%. The decrease in M&A is also determined by the increase in Connectivity at a significance level of 10%. The amplification of M&A operations occurs as a result of the increase in Digital Technology Integration, for a threshold of 5%.

Table No. 15. Empirical results for the second linear regression model

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	**Std. Error**	**Beta**			**Tolerance**	**VIF**
2	(Constant)	5.203E-016	.138		.000	1.000		
	Z(DPS)	.086	.185	.086	.466	.644	.567	1.764
	Z(HC)	-1.251	.371	-1.251	-3.371	.002***	.142	7.066
	Z(IDT)	.898	.375	.898	2.393	.022**	.138	7.227
	Z(CONN)	-.293	.173	-.293	-1.696	.098*	.654	1.529

a. Dependent Variable: Zscore(MA)

***,** and * Variables are significant at a significance level of 1%, 5%, 10%

Source: Author's own analysis in SPSS Statistics

The negative impact of Human Capital on M&A may be due to the training of the workforce and the costs involved. The more qualified the workforce, the higher the wage costs. Already developed companies are less willing to be involved in M&A, thus reducing the supply of M&A. And demand may be reduced when investors are oriented towards cheap markets and not necessarily towards a digitalized workforce.

Connectivity negatively influences mergers and acquisitions when high connectivity determines more mature and competitive markets, with stable companies that make it difficult to enter through M&A. The positive impact of the Integration of digital technology in companies is due to the attractiveness for investors, as the targets are more innovative. Mergers and acquisitions with already digitalized companies also have the advantage of reducing the risks and costs of post-M&A digital transformation. The insignificant impact of Digital Public Services is determined by the variability of digital services, perceived as little relevant by investors, given that regulations and bureaucracy are the same regardless of digitalization.

The collinearity between variables is checked by the Tolerance and VIF tests. According to Tolerance, with values greater than 0.1, there is no problematic collinearity, while VIF shows moderate collinearity for the Human Capital and Digital Technology Integration variables.
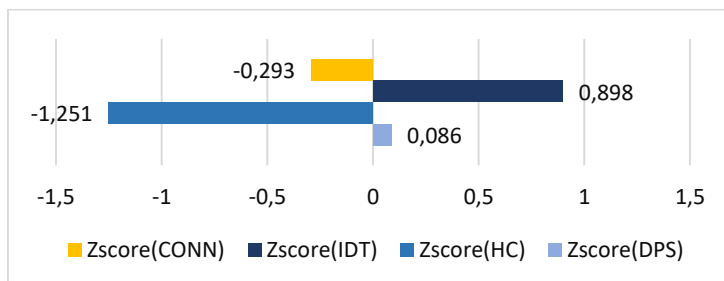
Figure no. 2. Graphical representation of the coefficients of the second regression model

Source: Author's own elaboration

Statistically significant influence is manifested according to Figure 2, the blue variables, respectively, Digital Technology Integration and Digitalization of Public Services, with a positive impact and Human Capital with a negative impact. The positive impact is determined by the high degree of digitalization that can boost consolidations through M&A, especially in the tech, fintech sectors. An efficient digital environment reduces transaction costs, and facilitates the M&A process, especially due diligence and administrative processes, increasing efficiency and transparency. The negative impact of Human Capital is manifested in the conditions in which countries with high human capital may already have efficient companies, which does not determine involvement in M&A. Wage costs with qualified labor are higher, reducing the attractiveness for mergers and acquisitions.

Table No. 16. Results of the Kolmogorov-Smirnov test

		Zscore (MA)	Zscore (CONN)	Zscore (DPS)	Zscore (HC)	Zscore (IDT)
N		42	42	42	42	42
Normal Parameters[a,b]	Mean	0E-7	0E-7	0E-7	0E-7	0E-7
	Std. Deviation	1.0000	1.0000	1.0000	1.0000	1.0000
Most Extreme Differences	Absolute	.160	.132	.145	.103	.138
	Positive	.160	.132	.077	.103	.138
	Negative	-.129	-.083	-.145	-.065	-.080
Kolmogorov-Smirnov Z		1.037	.855	.942	.668	.896
Asymp. Sig. (2-tailed)		.232	.458	.337	.764	.398

a. Test distribution is Normal.

b. Calculated from data.

Source: Author's own analysis in SPSS Statistics

According to the Kolmogorov-Smirnov test, (table no. 16), the data follow a normal distribution with mean 0 and standard deviation 1. The largest differences between the observed cumulative distribution of the sample and the expected normal distribution coincide as absolute and positive differences for M&A, Connectivity, Human Capital and Digital Technology Integration. The negative differences take values between -0.146 and -0.065. Asymp. (2-tailed) has a value greater than 0.05), meaning the data follow a normal distribution.

High levels of digitalization can reduce the attractiveness of M&A to investors, so complementary strategies such as investment incentives are needed. The quality of regulations needs to be analyzed more carefully, taking into account the sectoral level to capture the impact on M&A.

M&A is not uniformly influenced by digitalization, with the strongest incentive coming from the integration of digital technology at the firm level. Human capital development and connectivity need to be supported by measures to stimulate innovation and collaboration between firms. Simplifying M&A processes would significantly

influence the digitalization of public services by connecting them directly with the business environment.

Conclusions

In the context of increased digitalization and constantly changing regulations, along with the tendency of companies to develop rapidly through external growth practices, this paper investigates the influence of digitalization and regulations on mergers and acquisitions. The analysis was conducted for a sample of developing countries in Central and Eastern Europe, EU members, between 2016-2023.

In M&A operations, digitalization facilitates large asset valuations and reduces transaction closing times. However, the pandemic context has diminished both the appetite and skills for M&A, creating obstacles for even the most skilled acquirers. Retailers and traditional companies must make additional efforts in the transition from physical to digital, accompanied by learning and a long-term vision. Often, the acquisition of companies in the same industry or complementary industries that are already digitalized or already subject to certain regulations is used as a strategy. Numerous regulations predispose to involvement in more M&A, with higher long-term performance. The first multiple linear regression model developed tests the impact of the Digital Economy and Society Index alongside the Quality of Government Regulations. The DESI index negatively influences mergers and acquisitions operations, while the value of M&A transactions and inflation drive transactions. The Quality of Government Regulations does not have a statistically significant impact. The impact of DESI determines the decrease in Mergers and Acquisitions as compliance costs increase for companies involved in M&A, especially for traditional sectors such as industry, resources, investors being less willing to invest in conditions of insufficient digitalization.

The positive impact of the value of transactions is based on the fact that it reflects investors' confidence in the profitability of the market, stimulating large M&A transactions. The market is thus consolidated, in a favorable economic environment, with attractive financing and assets. The positive impact of inflation is noticeable when, within moderate limits, it reduces the real value of debts and increases the attractiveness of transactions financed by debt. On the other hand, it can generate lower company valuations, making it attractive to acquirers. If companies need liquidity, the sale of companies is encouraged, implicitly M&A.

The second multiple linear regression model develops the components of the DESI Index and their impact on mergers and acquisitions. Human Capital and Connectivity negatively influence the occurrence of mergers and acquisitions, while Digital Technology Integration has a positive impact. The negative impact of Human Capital on M&A may be due to the training of the workforce and the costs involved. The more qualified the workforce, the higher the wage costs. Already developed companies are less willing to be involved in M&A, thus reducing the supply of M&A. And demand may be reduced when investors are oriented towards cheap markets and not necessarily towards a digitalized workforce.

Connectivity negatively influences mergers and acquisitions when high connectivity determines more mature and competitive markets, with stable companies that make it difficult to enter through M&A. The positive impact of the Integration of digital

technology in companies is due to the attractiveness for investors, the targets being more innovative. Mergers and acquisitions with already digitalized companies also have the advantage of reducing the risks and costs of post-M&A digital transformation.

Digitalization accelerates M&A transactions, reducing the time and costs associated with mergers and acquisitions. Traditional corporations are turning to technology companies to innovate faster, but the integration of IT systems, digital infrastructure and a long-term vision are essential for the success of mergers and acquisitions.

The paper improves the specialized literature and provides an overview of the impact of digitalization and regulations on the occurrence of mergers and acquisitions in Central and Eastern Europe. This study makes an original contribution to the literature by taking an integrated approach to three key dimensions of the digital economy: digitalization, regulatory quality, and M&A activity for developing countries in the European Union. While most studies treat the influence of digital transformation or regulation on markets separately, this analysis offers a comprehensive view of how digital infrastructure and institutional quality can act as determinants of M&A dynamics in an integrated European context. It is thus noted that M&A decreases with increasing digitalization as compliance costs increase, making investors less willing to invest in conditions of insufficient digitalization.

The second model illustrates the negative impact of Human Capital on M&A due to workforce training and the costs involved. Connectivity negatively influences mergers and acquisitions when high connectivity leads to more mature and competitive markets, while the positive impact of the Integration of digital technology in companies is due to the attractiveness for investors, the targets being more innovative.

Based on the results obtained, the study proposes as specific policy recommendations, promoting digitalization in enterprises, strengthening the quality of regulations for a coherent, transparent and predictable regulatory environment. The regulatory framework should be normalized between EU Member States, stimulating strategic mergers in less developed regions. European authorities should develop specific analytical tools and indicators to monitor and evaluate in real time the impact of technology adoption on market structure and economic concentration.

The limitations of the research consist in the small sample and the time period limited to 2023 due to the lack of more recent data. Future research directions include updating the data, expanding the analysis sample, and including other variables in the testing.

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