

# ANALYSIS OF INTANGIBILITY DEGREE IN COMPANIES LISTED ON THE BUCHAREST STOCK EXCHANGE

DOI: <https://doi.org/10.36004/nier.es.2025.1-02>

JEL Classification: M40, M41

UDC: 336.76

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**Received** 10 December 2024

**Accepted for publication** 15 March 2025

## SUMMARY

The purpose of this research is to analyse the influence of the financial indicators Return on Equity, Leverage, Liquidity, size on intangibility degree of companies listed on the Bucharest Stock Exchange (BVB). The intangibility degree is important because it signals the existence of valuable intangible resources that are not quantified by traditional accounting, but which contribute significantly to the market value and growth potential of the company. The intangibility degree has been determined in this paper using Tobin's Q ratio, determined as the ratio between the market value of companies and the total replacement cost of their assets. This was achieved through a literature review. It was used to identify the financial indicators recommended by various researchers as determinants of the intangibility degree, as well as the working hypotheses of the paper. Another objective of the paper was to create an econometric multiple linear regression model to explain the influence of the previously selected financial indicators on the intangibility degree of companies listed on the BVB. The results obtained show that the Sig. value for the variables Return on Equity, Leverage, Liquidity is lower than the statistical threshold of 0.05, which reveals their positive influence on the intangibility degree, while size does not influence this degree because the Sig. value exceeds the mentioned threshold. We believe that the results of this paper can support companies that have as a strategy to increase the intangibility degree by maximising the influence of the variables that contribute to this increase.

*Keywords: intangibility degree, companies listed, return on equity, leverage, liquidity, size*

## INTRODUCTION

Due to technological and economic changes, value standards have undergone changes, which is why stakeholders need to thoroughly understand the composition and structure of intangible assets and their impact on company value. Several works, including Kovalev (2014) demonstrate that intangible assets are the main source of sustainable development. Also, Gu and Lev (2011) are of the opinion that 40% of the value of a company is not reflected in the balance sheet, which is attributed to intangible assets, and the growth can reach up to 90%, which is why they are of the opinion that the main drivers of growth and value of companies in most sectors of the economy are intangible assets.

Determining the value of intangible assets analyses the extent to which their accounting treatments are related to stock market values. Assessing the value of intangibility degree is still a controversial and hotly debated issue in literature.

The value of intangible assets has gained importance for stakeholders due to the shift from a tangible asset-based economy to an intangible asset-based economy (Güleç, 2021). Although there are contrary opinions, some researchers argue that intangible assets, interpreted with the help of financial statement data, can credibly justify the market value of a company, the possession of competitive advantage and the contribution to the long-term sustainability of the company, thus exerting a positive influence (Milala et al. 2021).

Therefore, the aim of this research is to analyse the influence that certain financial indicators exert on intangibility degree of companies listed on the Bucharest Stock Exchange (BVB). The intangibility degree was determined by means of Tobin's Q ratio determined as the ratio between the market value of companies and the total replacement cost of assets. This was achieved by means of a literature review which identified the financial indicators that were used by the researchers to analyse this topic and with which the working hypotheses were formulated. Subsequently, the database was constructed, and the data was analysed to make it complete, useful and relevant for the calculation of financial indicators. The last objective is to create an econometric multiple linear regression model that can explain the influence of the four financial indicators on intangibility degree of companies listed on the BVB.

The results of the study take the form of an econometric model analysing the influence of four independent variables: Return on Equity, Leverage, Liquidity, Size on the dependent variable the intangibility degree of companies determined by Tobin's Q ratio. According to the results, Return on Equity, Leverage and Liquidity positively influence the intangibility degree, while Size does not influence the dependent variable.

## LITERATURE REVIEW

In the current state of the economy, the role of strategic resources has been shifted from tangible assets to intangible assets as their importance for value creation for companies as well as for its performance has increased (Qureshi & Siddiqui, 2020). Intangible assets are those resources that companies utilise for the purpose of creating value (Yallwe & Buscemi, 2014). According to IFRS 38, “an intangible asset is an identifiable non-monetary asset without physical substance”. This category of assets corresponds to the acquisition, development, maintenance and improvement of items that lack physical substance, such as: technical and scientific knowledge, practical integration of new systems, licences, intellectual property, intellectual capital, market intelligence, marketing, customer relationships, name, reputation, brand and trade dress. To be recognised in accounting, intangible assets must be identifiable, controllable and generate future economic benefits for the company (Medrado et al. 2016).

Several authors (Sullivan Jr & Sullivan Sr, 2000; Lev, 2001; Steenkamp & Kashyap, 2010) have analysed the influence of intangible assets on value creation for companies in different economic environments. Lev (2001) demonstrates that in many companies, the contribution of intangible assets exceeds the contribution of tangible assets in companies' value and value growth, stating that “for every six dollars of market value, one dollar is recorded as tangible assets and the rest is intangible assets”. This contribution is often recognised as an expense in financial statements and the true value of intangible assets is not recognised in companies' balance sheets. For this reason, the author analysed in a workshop the statement “What is not reported is not measured and not managed”. Thus, a key determinant of a company's value, competitive advantage and strategy is its intangibility degree (Mackie, 2010). Other researchers such as Perez and Famá (2015) in their study analysed the relevance of intangible assets for the value of companies investing in intangible assets and demonstrated their importance for high performance and value growth strategies.

*H1: ROE is positively correlated with companies' intangibility degree*

Reflecting on leverage, previous studies argue that the relationship between intangible assets held by companies and leverage is negative (Sen & Oruc, 2008). Gamuyani (2015) explains this relationship based on the risk held by intangible assets, as they cannot be used as collateral, while tangible assets can. Also, in their paper, Lim Macias et al (2018) showed that there is a strong relationship between identifiable intangible assets and financial leverage (Qureshi & Siddiqui, 2020). The results are also supported by Takano, H. (2023) who

At the same time, studies conducted so far point to a dearth of literature on the value of intangible assets, their contribution to the value of companies, and how tangible assets or financial indicators influence intangibility, most of which focus on the role of intangible assets over tangible assets. In the literature, many specialised studies use Tobin's Q coefficient as a proxy to determine the intangibility degree of companies. This coefficient quantifies the difference between the market value and the replacement cost of the total assets held by a company, which is why it is considered as a proxy for intangibility. For this reason, in this paper, the intangibility degree of companies will be calculated by the ratio of the market value to the total replacement cost of assets, an approach used by Martins & Lopes (2016). The ratio of the two types of values shows how many times the market value is higher or lower than the book value.

Reflecting on the relevant financial indicators, ROE is a key indicator for investors as it measures the efficiency with which shareholders' capital is utilised by the company (Ibrahim, 2023). According to Damodaran (2009) both profit and invested capital are affected by the capitalisation of intangible asset expenses. Thus, the high value of ROE after capitalisation of these expenses can be viewed as a rough indicator that the return earned by the company from investing in intangible assets is higher than the return on traditional investments (Damodaran, 2009). Similarly, Keter et al (2023) examined the influence of ROE on the value of companies listed on the Nairobi Stock Exchange (NSE) in Kenya, which value was determined using Tobin's Q parameter. The results of the study confirmed the positive influence of financial performance on company value. Thus, financial surplus provides companies with the opportunity to reinvest in intangible assets such as research and development, innovation, capital growth and intellectual property, which contribute to value growth.

Therefore, based on the literature, we state the first working hypothesis of this paper:

in his research finds that the leverage ratio is positively associated with identifiable intangible assets. However, the type of relationship varies depending on the level of financial development of the country for which the influence is analysed, as “the correlation of intangibles with leverage ratio is less positive for countries with stronger financial development, and the correlation becomes negative when financial development is sufficiently strong” (Takano, 2023). Therefore, according to the literature, we can state the following hypothesis:

*H2: Leverage ratio is not correlated with asset intangibility*

Further, in a seminal paper, Pham et al (2018) examined the effects of asset liquidity on innovation investments, showing that highly liquid firms focus more on investments in intangible assets because liquidity is meant to mitigate the effects of uncertainty created by lack of cash flows or external financing. Liquidity helps the following:

*H3: Current liquidity positively influences the intangibility degree of companies*

Another important factor is the size of these companies. This is a variable that the literature finds can affect company value. (Setiadharm & Machali, 2017; Medrado et al. 2016). We believe that the size of a company is a positive indicator of its development for current and future investors, which over time increases the value of the company. However, some results, such as in the study by Molodchik et al. (2016), demonstrate

to increase value especially in the case of companies with a short duration of operations due to the lower degree of tangibility and they tend to invest more in intangible assets (Gopalan & Pevzner, 2012) to increase the degree of innovation and hence the value of the company. According to these studies we hypothesised

that unlike large companies, SMEs have a higher level of human resource development, innovation and internal capabilities. This is also supported by Saunila & Ukko, (2014) whose results reveal that firm size does not have a significant effect on innovativeness, which includes the intangibility degree through employees' skills, technology used, customer and supplier relationships. Based on these we state our last study hypothesis:

*H4: Company size does not influence the intangibility degree of companies*

## RESEARCH METHODOLOGY

The database formed and used in this research is quantitative and consists of data presented in the financial statements of companies listed on the Bucharest Stock Exchange (BVB), as well as stock market data from the official website <https://www.bvb.ro/>.

The population analysed is represented by a total of 87 companies listed on the BVB during the 2019-2023 time period. The research sample consists of a number

of 56 companies in the same time frame. The main inclusion criterion was the availability of data necessary to determine the variables used.

The dependent variable for this research is the intangibility degree of companies' value, which was measured in excel using Tobin's Q formula. As for the independent variables, they are Return on Equity, Leverage, Liquidity, Size, presented in Table 1.

**Table 1.**  
*Model variables*

Symbol	Name	Description	Formula
<b>Dependent variable</b>			
<b>TQ</b>	Tobin's Q ratio	Assesses whether a firm's shares are properly valued in comparison with its tangible assets.	$\frac{\text{Market Value}}{\text{Total assets replacement cost}}$
<b>Independent variables</b>			
<b>ROE</b>	Return on Equity	It shows the net return on each monetary unit invested by shareholders in the form of capital.	$\frac{\text{Net Income}}{\text{Equity}}$
<b>LEV</b>	Leverage	Shows how much of a company's assets are financed by debt	$\frac{\text{Total Debt}}{\text{Total Equity}}$
<b>LC</b>	Liquidity	Reflect the firm's ability to honour its short-term obligations by transforming current assets.	$\frac{\text{Current Assets}}{\text{Current Debt}}$
<b>SZ</b>	Size	Indicates the size of assets held by a company.	$\ln(\text{total assets})$

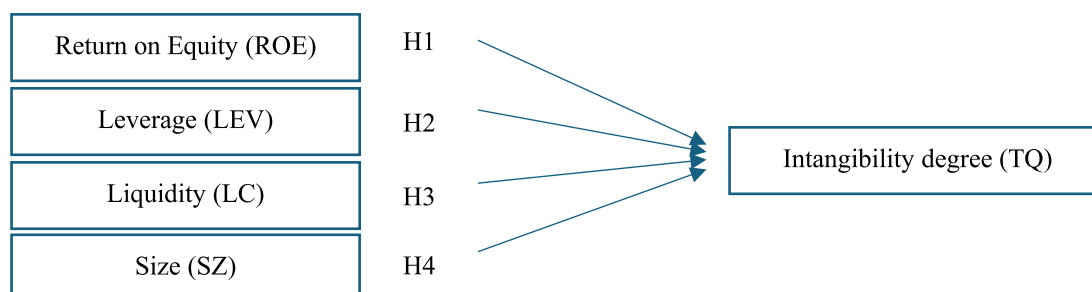
Source: Author's own processing based on specialised literature

As the main method of analysis, this study uses multiple linear regression. The aim is to determine the influence as well as the strength of the relationship between the independent variables and the dependent variable. The

conceptual framework of the realised econometric model based on the working assumptions can be observed in the figure below.

**Figure 1.**

*Variables in the research model*



*Source: Author's own processing*

It should be noted that the data were collected and processed in Excel, and the econometric modelling was carried out using SPSS Statistics 26.

## RESULTS AND DISCUSSIONS

This section presents and analyses the results obtained by applying econometric modelling to the research sample. The study aimed to analyse the relationship between Return on Equity, Leverage, Liquidity, Size and Tobin's Q, used as an indicator of intangibility. Subsequently, the results obtained will be correlated with the hypotheses formulated based on the specialised literature, providing an interpretation of the statistical and economic significance of the influences identified.

**Table 2.**

*Model Summary<sup>b</sup>*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0,488	0,251	0,238	0,494142847871829	1,981
Predictors: (Constant), SZ, ROE, LC, LEV					
Dependent Variable: TQ					

*Source: Results SPSS output*

According to Table 2, there is a correlation of 48.8% between the independent variables and the dependent variable. The coefficient of determination (R Square) measures how much of the variation in the dependent variable can be explained by the independent variable. Thus, the R Square value is 0.251, which means that 25.1 per cent of the variation in the intangibility degree is influenced by ROE, LEV, LC and SZ. Next, we present the level of collinearity in Table 3.

**Table 3.***Test Results Multicollinearity*

Variable	Statistic Collinearity		Information
	Tolerance	VIF	
ROE	0,423	2,367	Non Multicollinearity
LEV	0,415	2,409	Non Multicollinearity
LC	0,999	1,001	Non Multicollinearity
SZ	0,953	1,049	Non Multicollinearity

*Source: Results SPSS output*

The above table demonstrates that the independent variables ROE, LEV, LC and SC have a tolerance value greater than 0.1 and VIF less than 10. Thus, it can be concluded that the independent variables belonging to the multiple linear regression model do not have multicollinearity problems.

In the following we present the results with respect to the coefficients of the econometric model realised, which can be observed in Table 4.

**Tabel 4.***Regression Analysis*

Variable	Multiple Linear Regression			Conclusion
	B	t	Sig.	
ROE	0,649	5,577	0,000	Significant
LEV	0,067	5,561	0,000	Significant
LC	0,028	2,414	0,016	Significant
SZ	0,026	1,610	0,109	Not significant
R	0,488			
R <sup>2</sup>	0,251			
Test F	12,203			
Sig.	0,000 <sup>b</sup>			

*Source: Results SPSS output*

First, according to Table 4 we can state the model equation, which is as follows:

$$TQ = 0,014 + 0,649 \cdot ROE + 0,067 \cdot LEV + 0,028 \cdot LC + 0,026 \cdot SZ + \varepsilon$$

Also, in Table 4 we observe that the Sig. value of the F-test is less than 0.05, which demonstrates that the regression model created explains the dependence between the

two categories of variables by a linear relationship, considered significant, in a proportion of at least 95%.

## EFFECT OF ROE ON INTANGIBILITY DEGREE

According to the above table, ROE is positively correlated with the intangibility degree of the companies, which confirms the first hypothesis, the value of the coefficient of influence being 0.649 units and the Sig value less than 0.05. According to the model equation, if ROE increases by one unit, the intangibility degree will increase by 0.649 units. This positive influence is due to the fact that the high level of ROE provides companies with financial

resources to invest in the acquisition or development of intangible assets. Companies with high ROE that tend towards innovation strategies based on intangible assets can gain a competitive advantage due to the influences created: ROE can contribute to increasing the ability to invest in intangible assets, which in turn can contribute to the future profitability of companies.

## EFFECT OF LEV ON INTANGIBILITY DEGREE

We observe that LEV is also positively correlated with the intangibility degree of companies. According to Table 4, the value of the coefficient of influence of 0.067 units and the Sig value is less than 0.05, thus the first hypothesis is satisfied. Therefore, according to the model when LEV increases by one unit, the intangibility degree will increase by 0.067 units. In the absence of available own resources, leverage gives companies the possibility to have the necessary resources in the context

of the knowledge economy to invest in intangible assets such as R&D, information technology, human capital training. As intangibility is positively associated with the potential to generate value, companies oriented towards this kind of strategy can utilise borrowed resources due to expectations of future profitability. However, in the absence of traditional tangible assets, lenders are sceptical when deciding whether to lend to this type of company.

## EFFECT OF LC ON INTANGIBILITY DEGREE

The third hypothesis, that current liquidity significantly influences the intangibility degree of companies is confirmed. The value of the influence coefficient is 0.028 units, and the Sig value is 0.016. Given that investments in intangible assets have a high degree of risk with long-term effects, companies need to ensure that they have

sufficient cash reserves to honour their obligations. High liquidity reduces companies' financial constraints and provides them with their own resources to finance the development of intangible property, thus contributing to the intangibility of companies.

## EFFECT OF SZ ON INTANGIBILITY DEGREE

According to our model, the fourth hypothesis that company size does not influence the intangibility degree of companies is also confirmed. The value of the coefficient of influence is 0.026 units, but the Sig value is 0.109, above the relevant statistical threshold. The lack of influence of company size on the intangibility degree is due to the fact that, unlike large companies,

which have sources of financing, profits, fixed assets, a large number of employees, small companies are oriented towards maximising the use of internal capabilities such as intellectual capital, divided into human capital, structural capital and relational capital, in order to increase the value of companies, to which the intangibility degree also contributes.



## CONCLUSIONS

The present study analyses the effect of four independent variables; Return on Equity, Leverage, Liquidity, Size on the intangibility degree of BVB listed companies between 2019-2023. These variables were selected based on literature review. They were calculated based on the information from the financial statements present on the BVB website. As for the intangibility degree of companies, it was calculated by relating the market value to the total replacement cost of assets.

According to the econometric modelling, the results show that the Sig. value of Return on Equity, Leverage, Liquidity is lower than the threshold of 0.05, which proves that these variables have a positive impact on the intangibility degree, while the Size variable does not influence this degree because the Sig. value exceeds the mentioned threshold. Therefore, according to the model equation, the increase by one unit of Return on Equity, Leverage, Liquidity increases the intangibility degree by 0.649, 0.067 and 0.028 units respectively.

These results can provide corporate management with practical implications for increasing the intangible value perceived by the market through concrete strategies. For example, to increase the influence of ROE companies can focus on optimising operational efficiency, carefully controlling costs and making strategic investments with superior returns. The positive influence of leverage can

also be maintained, even amplified, by the strategic use of leverage to finance growth projects, often perceived as a favourable factor by investors. At the same time, optimising liquidity requires effective management of cash flow and working capital to provide market confidence that companies are financially stable and able to capitalise on new opportunities.

The main limitation of this paper is the use of a single method to quantify the degree of intangibility due to the lack of financial data directly measuring intangible assets. In addition, the results of the study may be limited by potential biases away from the mean values not covered by the analysis due to market instability and volatility. The research may also be limited by the omission of variables that directly contribute to intangible value creation, such as R&D expenditures or the quality of corporate governance. Identifying the limitations helps us to outline future research directions. Future studies could use alternative indicators to determine the degree of intangibility of companies, such as R&D expenditure or marketing and innovation expenditure. In addition, integrating qualitative approaches such as content analysis of annual reports, analysis of human, structural and relational capital and brand strategy can contribute to a more nuanced understanding of the mechanisms through which companies create intangible value.

## AUTHORS' CONTRIBUTIONS

- Conceptualization: Ioana Andrioaia, Veronica Grosu, Svetlana Mihaila, Ana-Carolina Cojocaru (Bărbieru)
- Methodology: Ioana Andrioaia, Ana-Carolina Cojocaru (Bărbieru)
- Formal analysis: Veronica Grosu
- Investigation: Ioana Andrioaia, Ana-Carolina Cojocaru (Bărbieru)
- Writing – original draft: Ioana Andrioaia, Veronica Grosu, Svetlana Mihaila, Ana-Carolina Cojocaru (Bărbieru)
- Writing – Ioana Andrioaia, Veronica Grosu, Svetlana Mihaila, Ana-Carolina Cojocaru (Bărbieru)
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