INVISIBLE CAPITAL AT WORK: EVALUATING THE IMPACT OF INTANGIBLE ASSETS ON COMPANY PERFORMANCE

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Abstract:
Research background: The increasing role of intangible assets in the digital economy is significantly transforming business structures in Europe. While the relevance of assets such as software, patents, or know-how is growing, their impact on company performance remains underexplored, particularly in Central and Eastern European countries. Gaps persist in understanding how intangible assets contribute to revenue generation and profit creation across company sizes and national contexts.
Purpose of the article: The aim of this article is to analyse the evolution and financial implications of intangible assets in manufacturing companies operating in Slovakia and the Czech Republic. The research investigates the relative importance of intangible versus tangible assets and compares their influence on key performance indicators such as operating revenue and operating profit, with a specific focus on size-based differences.
Methods: The analysis is based on data from the years 2018 to 2023, covering a sample of 1,393 manufacturing companies from the ORBIS database. The analysis combines descriptive statistics, year-on-year growth comparisons through paired samples t-tests, Spearman correlation analysis and separate linear regression models for each country.
Findings & Value added: The results show that intangible assets are growing faster than total assets, especially in Slovak SMEs and very large companies. While correlations with financial performance are statistically significant, they remain moderate in strength. Regression models explain over 98 percent of revenue variability and confirm the economic relevance of intangible assets, which outperform tangible ones in predictive value. The value added of this study lies in confirming the role of intangible assets as a relevant but not standalone factor in financial performance.

Keywords: intangible; performance; manufacturing sector; empirical research; digitalisation

JEL Classification: M21; O34; L25

1. Introduction

The dynamic development of the digital economy and the increasing importance of the knowledge-based economy are leading businesses in Europe to make fundamental changes in the structure of their assets. The traditional emphasis on tangible assets is gradually being replaced by the growing importance of intangible assets, which include software, patents, data, organisational capabilities or human capital. Despite this shift, intangible assets remain partially undervalued in many analytical models. This is mainly due to the fact that its impact on company performance is not always grasped in a consistent way, while at the same time, its systematic measurement and comparison across countries or sectors is often lacking. Given these challenges, there is a need to verify to what extent the evolution of intangible assets is reflected in company performance and what role it plays in the current digital transformation. This study therefore intends to analyse the development of intangible assets in companies in the Slovak and Czech Republics, compare it with the development of total assets and examine its relationship with revenue and profitability.

The growth of investment in intangible assets is confirmed by a number of empirical studies showing its positive impact on company performance. In their analysis, Roth et al. (2022) identify a strong link between the level of intangible assets and companies' financial performance, arguing that it is one of the main sources of sustainable growth. Antzoulatos et al. (2022) point out that despite existing differences across countries, convergence in the perception and use of intangible assets can be observed. These findings are consistent with a study by Chen (2018), who shows that productivity differences across countries can be significantly explained by differences in the intensity of investment in intangibles. Corrado et al. (2017) add that knowledge-intensive and R&D-orientated sectors exhibit the highest levels of investment, which also leads to higher innovation capacity and adaptability to technological change.

Important insights on structural differences emerge when analysing the central and eastern European regions. As suggested by several research sources, the growth of intangible assets in countries such as Slovakia or the Czech Republic may be mainly influenced by external impulses, for example, through integration into global value chains and the presence of multinational owners (Durcova and Pekarcik, 2023; Thum-Thysen, 2017; Van Assche, 2020). These findings are confirmed by the McKinsey Global Institute (2021) report, which warns of the risk of over-dependence on external sources of know-how and insufficient internal innovation creation. These conditions are causing intangible assets to become the preserve of larger or foreign companies in some countries, while small and medium-sized enterprises (SMEs) face constraints in building and capitalising on them. Svarc et al. (2020) point out that regional differences in the use of intangible assets are closely related to the quality of the business environment, the availability of digital infrastructure and the level of collaboration between research and business.

Intangible assets should not be seen as passive assets but as active inputs to the process of business transformation. Nagy et al. (2023) and Juracka et al. (2024) describe how companies are moving towards digital architecture-based models where algorithms, data, analytics and know-how are key elements of value. In this sense, intangible assets are not only the result of innovation but also a precondition for it. From this perspective, it plays an important role in a company's ability to implement advanced technologies such as artificial intelligence. Corrado et al. (2021) confirm that artificial intelligence adoption is more successful in companies that already have a strong base of intangible capital. Belloc and Valentini (2024) add that it is investment in intangible assets that allows companies to reduce the technology gap and more effectively counter the disruptions caused by automation. A similar view is held by the

McKinsey Global Institute (2021), which argues that companies with a higher share of intangible assets are not only more efficient but also more resilient to economic shocks and more able to adapt to rapid technological change.

Even in academic circles outside the European context, intangible assets are considered a strategic resource. According to Haskel and Westlake (2018), intangible assets represent a new type of capital that replaces physical infrastructure as the main engine of growth in the twenty-first century. Similarly, Brynjolfsson and McAfee (2016) argue that in the age of digital technology, value is created primarily through knowledge, software and networks, rather than through traditional factors of production. From this perspective, intangible assets can be seen as drivers of so-called invisible capital, the impact of which is often more perceptible than any physical input.

However, intangible assets are not evenly distributed across all companies or sectors. As Gumbau-Albert (2023) points out, regional differences in the use of intangible assets reflect not only the degree of innovative activity but also differences in the absorptive capacity of companies and their ability to implement knowledge in economic practice. Corrado et al. (2021) add that the ability to transform intangible assets into performance depends on the extent to which these assets are integrated into business strategies and processes. High levels of organisational capital, analytical skills and know-how enhance the effective use of intangible assets and increase their impact on performance. At the same time, in less developed regions and in small businesses, these assets are often used inefficiently or go unnoticed in traditional metrics for assessing corporate growth (Van Criekingen et al., 2021).

Research by Kafouros and Aliyev (2015) and Stan et al. (2024) reveals that companies in transition economies can gain a competitive advantage precisely by investing in intangible assets that allow for a more flexible response to changing market conditions. Labunska et al. (2024) also show that the regulatory environment, particularly in the area of intellectual property rights, affects the extent to which companies are willing to invest in intangible assets. These factors are particularly relevant for Central Europe, where the legal and innovation infrastructure is often fragmented (Ulnicane, 2020).

A review of the literature suggests that intangible assets are a deciding factor in modern company performance. At the same time, however, there remains a knowledge deficit, especially for SMEs and for Central European countries where data are not as widely available. This study therefore makes a relevant contribution not only by quantifying year-on-year changes in intangible assets but also by comparing them with the evolution of total assets and analysing their relationship with revenue and profit. The analysis focuses specifically on companies operating in NACE Section C, i.e., in the manufacturing industry, thus ensuring sectoral consistency and the possibility to take into account the specificities of the manufacturing economy. The focus on Slovakia and the Czech Republic also allows for verifying to what extent the conclusions from Western studies are applicable in smaller economies and what specificities these regions exhibit. The results can contribute to a better understanding of economic dynamics in times of digital transformation and at the same time serve as a basis for the design of policies supporting the growth of intangible investments.

2. Methodology

The aim of this study is to examine the development of intangible assets in companies in the manufacturing sector in Slovakia (SK) and the Czech Republic (CZ) and also to assess its relationship with the performance indicators of companies. Particular attention is paid to the comparison between different size categories of companies, as well as to the identification of

differences between the two countries under study. The analysis is based on data from the international ORBIS database, which provides detailed economic information on companies operating in different sectors and countries. For the purpose of this study, only companies classified according to the NACE Rev. 2 industry C – Manufacturing were selected from the database. The sampling frame included companies from the Czech and Slovak Republics that had available and non-absent data in the variables under study for the years 2018 to 2023. An overview of the variables used, including their units of measurement, is presented in Table 1. After applying the selected variables, the sample consisted of 715 Czech and 678 Slovak companies, which were further divided into size categories. In the Czech Republic, there were 132 small and medium-sized enterprises (SMEs), 360 companies classified as large companies and 223 very large companies. In the case of Slovakia, 137 companies were classified as SMEs, 346 were large companies and 195 were very large companies. The size classification was drawn directly from data available in the ORBIS database, which classifies companies according to a combination of several indicators, such as number of employees, turnover and balance sheet total assets.

Table 1: Overview of variables and measurement units

Variable	Unit of Measurement/Type
Intangible assets	th. EUR
Tangible fixed assets	th. EUR
Total assets	th. EUR
Operating revenue (turnover)	th. EUR
Operating profit (EBIT)	th. EUR
Cost of goods sold	th. EUR
Country	Categorical (*Slovakia, Czech Republic*)
Size classification	Categorical (*SME, Large, Very large*)

Source: own processing

The analysis is designed in several steps, starting with descriptive statistics to capture the underlying trends in the level of intangible assets across size categories and between the two countries. As part of this phase, the share of intangible assets in total assets was also quantified, allowing an assessment not only of the absolute level but also of the relative importance of this type of asset within the overall asset structure of companies. This approach provided an initial picture of the extent to which intangible assets play a role in companies of different sizes and in different national contexts.

The second part of the analysis proceeded to compute the year-on-year relative changes in intangible assets and total assets. These values then formed the basis for the application of a paired samples T-test, which was used to test for the existence of statistically significant differences between the growth of intangible assets and the growth of total assets. The tests were carried out separately for each country and size category in order to capture the specificities in the dynamics of development depending on the size of the company and the economic environment.

This phase was followed by a correlation analysis in which Spearman's correlation coefficients were calculated between the level of intangible assets and the performance variables, namely operating revenue (turnover) and operating profit (EBIT). The correlations were found separately for Slovak and Czech companies, which allowed for a comparison of the relationships between asset structure and performance in the context of national differences. This step was important for understanding whether a higher share of intangible assets in companies is related to their better performance.

In the last part of the methodological framework, a linear regression analysis was conducted to quantify the impact of intangible assets on companies' operating revenue (turnover).

Intangible assets and tangible assets were included as explanatory variables in the model. To capture differences between size categories, dummy variables representing the categories of SMEs and large companies were also included in the model, with very large companies as the reference category. Regression models were constructed separately for Slovakia and the Czech Republic. The control procedure also included the verification of multicollinearity through the VIF (Variance Inflation Factor) value. The results were interpreted on the basis of unstandardised B coefficients for the main economic variables and standardised beta coefficients for the remaining explanatory variables. Precisely in this way, it was possible to quantify the average impact of the growth of intangible and tangible assets on the performance indicators while capturing the significance of differences between companies of different size categories.

All the calculations, tests and visualisations were carried out in the IBM SPSS Statistics 27 software. This software provided the space to efficiently process a large sample set and also allowed the statistical testing to be combined with the interpretation of the effect sizes. The significance of the results was assessed at a p-value level < 0.05.

3. Results

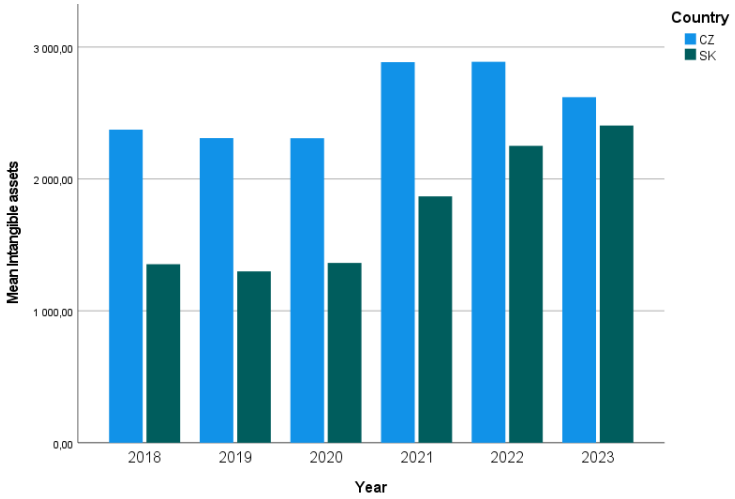
3.1. Descriptive statistics

The clustered bar chart provides an overview of the evolution of the average volumes of intangible assets in companies operating in Slovakia and the Czech Republic over the period 2018 to 2023. The visualisation in Figure 1 includes all size categories of companies, including SMEs, large companies and very large companies. The figure reveals that Czech companies had a higher average volume of intangible assets than Slovak companies in each of the years studied. Between 2018 and 2020, Czech companies remained relatively stable at a level just above EUR 2,300 thousand, while Slovak companies recorded lower values in the range of approximately EUR 1,400 to 1,500 thousand in the same period. A more significant change occurred in 2021, when the average intangible assets of Czech companies increased to almost EUR 2,900 thousand, and this level was maintained in 2022. A drop in the average volume of intangible assets was observed in the Czech Republic in 2023, falling below EUR 2,700 thousand, which still represents a higher value than in the initial three years. In contrast, Slovak companies have seen a steady increase since 2021. From around EUR 1,900 thousand in 2021 to over EUR 2,400 thousand in 2023, narrowing the gap with Czech companies.

In terms of a comparison of developments between countries, it can be noted that while the Czech Republic has maintained a steadily higher level of average intangible assets throughout the period, Slovakia has seen a more pronounced growth, especially in the second half of the period under review. This shift may indicate a later activation of investment activities related to digitalisation, R&D or innovation in Slovak companies. It is also important to note that while the gap between countries was quite significant between 2018 and 2020, the gap has narrowed in recent years. The smallest difference between countries was observed in 2023, which may indicate some convergence in the way and intensity of the use of intangible assets in business practice. The results thus suggest that Slovak companies are catching up with Czech companies in recent years in terms of investment in intangible assets, which may have a positive long-term impact on their competitiveness and technological maturity

The multi-panel line chart in Figure 2 enables a more detailed observation of the dynamics of the development of the average volume of intangible assets between 2018 and 2023, taking into account the size category of companies and their country of origin. Whereas in the previous

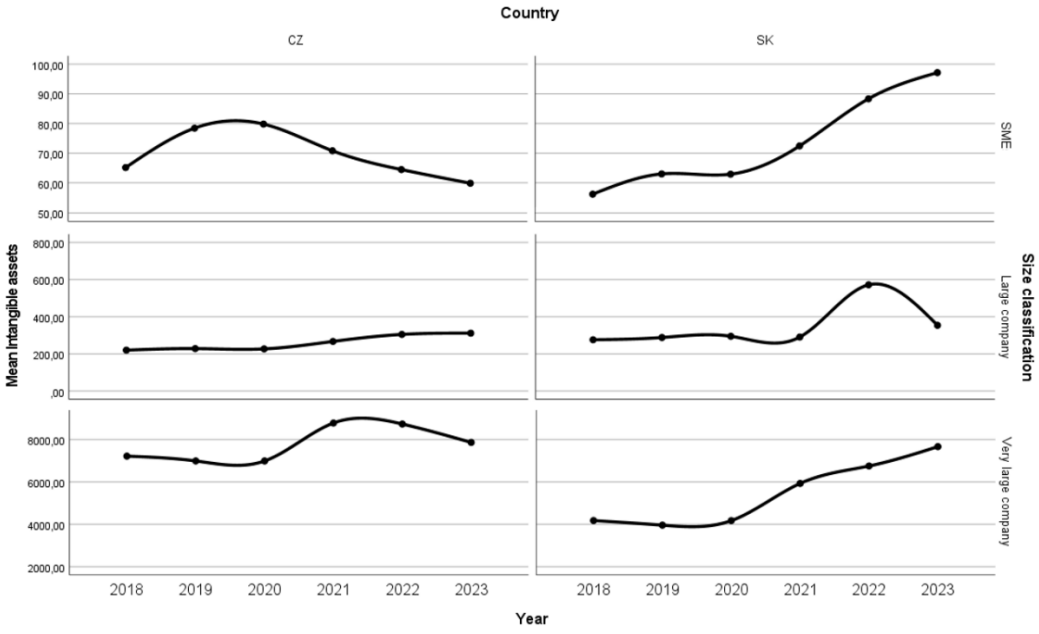
Figure 1: Evolution of average intangible assets by year



Source: own processing

visualisation all companies were aggregated, this chart reveals more pronounced differences between size categories that would otherwise remain hidden. In general, very large companies have the highest average intangible asset values regardless of country, with Slovak companies in this category showing a steadily increasing trend since 2020. Between 2018 and 2020, Slovak very large companies were steadily below EUR 5,000 thousand, but from 2021 onwards they started to show a rapid increase, culminating in 2023 at a value of almost EUR 8,000 thousand. The Czech development in this category is smoother, with a gentle decline until 2020, followed by a sharp increase in 2021 and 2022 and a slight decline in 2023. Despite the smaller dynamics, the average in the Czech Republic remains higher than in Slovakia only during the first few years, with very large Slovak companies reaching a comparable level in 2023.

Figure 2: Development of average intangible assets by company size and country (2018–2023)



Source: own processing

An interesting contrast can also be observed in the SMEs category. In the Czech Republic, these companies had the highest level of intangible assets in 2019 and 2020, but there was a

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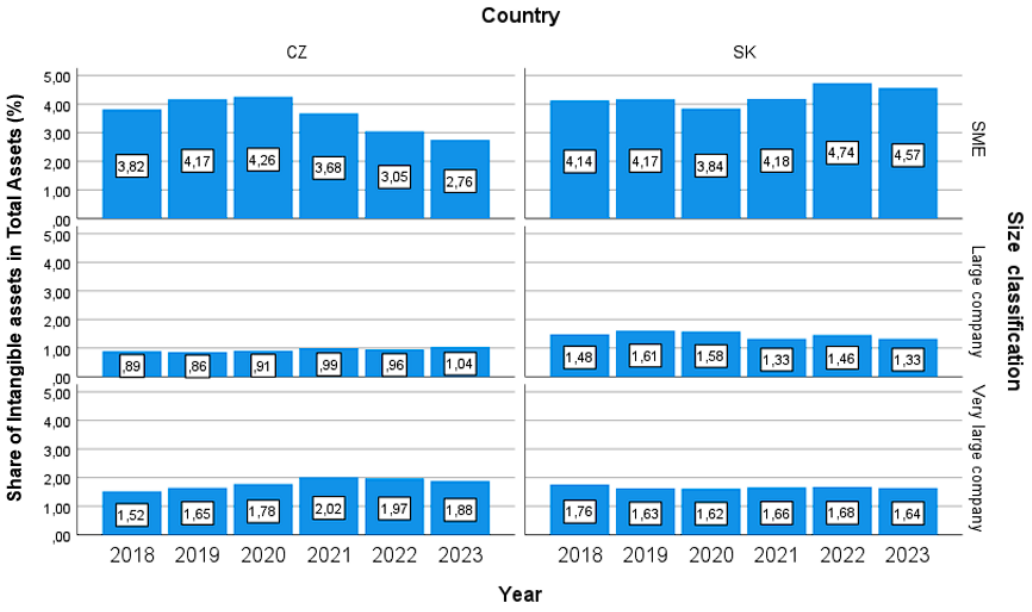
slight decline thereafter, which disrupted the previously upward trend. In contrast, Slovak SMEs show a consistent increase throughout the period under review. From just under EUR 60 thousand in 2018 to almost EUR 100 thousand in 2023, outperforming Czech companies in this category in the final years. In the large company category, the course of development in both countries is largely stable. In the Czech Republic, the average intangible asset values are in a relatively narrow band between EUR 270 and 350 thousand, with a gradual increase appearing especially after 2020. Slovak large companies show slightly higher volatility, an upward trend until 2022, which is then disrupted by a decline in 2023. Based on these trends, it can be stated that Slovak companies, especially in the categories of SMEs and very large companies, have shown a stronger propensity to invest in intangible assets in recent years. This shift may indicate an increased focus on strengthening innovation and technology investments in response to trends observed in the Czech Republic.

The graph in Figure 3 presents the evolution of the average share of intangible assets in the total assets of companies over the period 2018 to 2023, distinguishing between countries as well as between size categories of companies. This indicator is particularly informative, as it helps identify the extent to which intangible assets constitute a structurally significant component of total assets. The previous graphs showed the evolution of the absolute values of intangible assets and pointed to their dynamic growth, especially in the case of Slovak SMEs and very large companies. This graph provides a complementary view on whether this growth has also corresponded to a strengthening of the relative weight of intangible assets in total assets. The trend shown suggests that despite the increase in absolute values, the proportional importance of intangible assets has not increased evenly across categories and in some cases has remained stable or even declined.

Figure 3: Average share of intangible assets in the capital structure of companies by size category



Source: own processing

Slovak SMEs recorded the highest share growth dynamics, reaching the highest values of all analysed categories from 2020 onwards. Their share of intangible assets in total assets stabilised above 4.5 percent, significantly exceeding the levels observed for Czech SMEs. In the Czech Republic, the share decreased from a peak of around 4.3 percent after 2020 to approximately 2.8 percent in 2023. This difference may reflect variation in investment orientation, the level of

digital readiness or financial reporting methodology. In the case of large companies, the shares in both countries are significantly lower, around 1 percent, with Slovak large companies even showing a slight decline. Very large companies exhibit slightly higher shares, around 1.6 to 2 percent, but their development remains relatively stable with minimal fluctuations. These findings suggest that an increase in intangible assets in absolute terms may not automatically be accompanied by an increase in their structural significance. A proper understanding of the role of intangible assets therefore requires parallel monitoring of both their volume and their relative share in total assets.

3.2. Paired samples T-tests

The results of the Paired Samples T-test for Slovak companies (Table 2) clearly show a systematic difference between the growth of intangible assets and the growth of total assets across all size categories. In the case of SMEs, the average annual growth of intangible assets reached 53.55 percent, while total assets grew by only 5.14 percent. The average difference of 48.41 percentage points between these two growth types was statistically significant (p-value = 0.0160). An even more pronounced difference was observed among large companies, where intangible assets grew by 148.99 percent compared to only 8.14 percent in total assets, resulting in an average difference of 140.85 percentage points, which was statistically significant (p-value < 0.0010). For very large companies, the difference was again substantial, with intangible asset growth reaching 177.46 percent and total asset growth at just 8.80 percent. The resulting difference of 168.66 percentage points was statistically significant (p-value = 0,0110).

Table 2: Summary of Paired Samples T-test results and effect sizes for Slovak companies by size category

Paired Samples Statistics				
		Mean	Std. Deviation	Std. Error Mean
SME	growth intangible assets	53.5534	529.3615	20.2259
	growth total assets	5.1411	26.3678	1.0075
Large company	growth intangible assets	148.9903	1,473.0074	35.4147
	growth total assets	8.1364	26.0291	0.6258
Very large company	growth intangible assets	177.4562	2,078.2376	66.5569
	growth total assets	8.8007	28.6258	0.9168
Paired Samples Test				
		Mean	Std. Deviation	Sig. (2-tailed)
SME	growth intangible assets	48.4122	525.5936	0.0160
Large company	– growth total assets	140.8539	1,468.0014	<0.0010
Very large company		168.6555	2,077.139	0.0110
Paired Samples Effect Sizes				
			Standardizer	Point Estimate
SME	growth intangible assets		525.5936	0.0920
Large company	– growth total assets	Cohen's d	1,468.0014	0.0960
Very large company			2,077.9393	0.0810

Source: own processing

Although all differences were statistically significant, effect sizes based on Cohen's d indicate a relatively low level of practical significance, ranging from 0.0810 to 0.0960. This outcome is primarily due to high variability in the data on intangible asset growth, which is also reflected in large standard deviations. Nevertheless, these findings provide a relevant insight. The growth of intangible assets substantially exceeds the growth of total assets across all categories of Slovak companies, indicating a specific investment dynamic in intangible resources. The fact that this difference was observed across the entire size spectrum may suggest a broader trend in which companies systematically strengthen their know-how, software capacities, or other forms of intangible capital independently of overall asset growth.

The results for the Czech Republic (Table 3), based on paired samples t-tests comparing the growth of intangible and total assets, also reveal notable differences across company size categories. Among SMEs, intangible assets showed a markedly higher average growth value of 158.77 percent compared to 7.22 percent for total assets. However, due to extremely high variability in the data, as evidenced by a standard deviation of over 2400, the difference was not statistically significant. The p-value reached 0.1090, and the effect size, expressed as Cohen's d, was 0.0620, indicating only a negligible practical difference. These findings suggest the absence of a consistent pattern and point rather to diverse investment behaviour within this group than to a systematic tendency toward higher intangible asset growth.

Table 3: Summary of Paired Samples T-test results and effect sizes for Czech companies by size category

Paired Samples Statistics				
		Mean	Std. Deviation	Std. Error Mean
SME	growth intagible assets	158.7659	2,425.2254	94.4018
	growth total assets	7.2182	38.1974	1.4868
Large company	growth intagible assets	106.7919	985.9231	23.2384
	growth total assets	6.8314	20.6088	0.4858
Very large company	growth intagible assets	121.2538	979.2816	29.3272
	growth total assets	6.9668	19.5749	0.5862
Paired Samples Test				
		Mean	Std. Deviation	Sig. (2-tailed)
SME	growth intangible assets	151.5477	2,425.5693	0.1090
Large company	– growth total assets	99.9605	984.9090	<0.0010
Very large company		114.2870	977.8220	<0.0010
Paired Samples Effect Sizes				
			Standardizer	Point Estimate
SME	growth intangible assets		2,425.5693	0.0620
Large company	– growth total assets	Cohen's d	984.9090	0.1010
Very large company			977.8220	0.1170

Source: own processing

In contrast, the results for larger companies confirm a statistically significant difference in both categories. For large companies, the average difference between intangible and total asset growth reached 99.96 percentage points with a p-value below 0.0010. Among very large companies, the average difference was 114.23 percentage points, also statistically significant with a p-value below 0.0010. Despite small effect sizes of 0.1010 and 0.1170, the consistency of the results and the size of the samples indicate a stable pattern. Compared to Slovakia, the most notable contrast is the lack of significance in the SMEs category, which in Slovakia showed a clear difference in favour of intangible assets. This contrast may reflect differing investment priorities and resource allocation strategies among smaller companies in both countries, even though the absolute growth values for intangible assets were substantially higher in both cases. The overall results indicate that in Czech companies the tendency for intangible asset growth to exceed total asset growth becomes more systematic with increasing company size.

3.3. Correlation analysis

The results of the Spearman correlation between the value of intangible assets and the core performance indicators of companies, specifically operating revenue and operating profit, suggest that there is a statistically significant but only moderately strong association between these variables in both the Slovak and Czech contexts. Among Slovak companies, the correlation coefficient (Table 4) between intangible assets and operating revenue reached 0.465 with a p-value below 0.001, which indicates a moderate relationship. The correlation with operating profit was lower at 0.293 but remained statistically significant. These results may be

interpreted as evidence that companies with a higher level of investment in intangible assets such as software solutions, patents, brands or know-how generally achieve higher revenues. The relationship with operating profit is present to a lesser extent, which may be related to the fact that intangible assets primarily support operating revenue growth, while their effect on operating profit may be moderated by other cost-related factors.

Table 4: Correlation between intangible assets and performance indicators (Slovak companies)

			Operating revenue	**Operating profit**
Spearman's rho	Intangible assets	Correlation Coefficient	0.465	0.293
		Sig. (2-tailed)	<0.001	<0.001
		N	678	678

Source: own processing

In the Czech sample, the values of the correlation coefficients (Table 5) were similar or slightly higher, which may indicate a somewhat stronger link between intangible assets and company performance. The correlation between intangible assets and operating revenue reached 0.521 (p-value < 0,001), representing the upper bound of a moderate association. The relationship with operating profit was weaker at 0.320, yet again statistically significant (p-value < 0,001). This slightly stronger correlation may result from more consistent or systematic reporting of intangible assets or from greater efficiency in their use to generate revenue. Nevertheless, in neither country do these correlations reach high levels, which indicates that intangible assets are only one of several factors influencing company performance. Their effects are likely exercised in combination with other organisational, industry-specific and macroeconomic variables. The findings therefore confirm the role of intangible assets as a partial determinant of revenue and profit performance while also highlighting the need for a deeper analysis of their synergies with other drivers of business outcomes.

Table 5: Correlation between intangible assets and performance indicators (Czech companies)

			Operating revenue	**Operating profit**
Spearman's rho	Intangible assets	Correlation Coefficient	0.521	0.320
		Sig. (2-tailed)	<0.001	<0.001
		N	715	715

Source: own processing

3.4. Linear regression analysis

The regression model for the Slovak Republic (Table 6) explains the variability in company operating revenues based on selected asset components, cost structure and size classification. The model demonstrates an exceptionally high level of explained variance with an adjusted R^2 value of 0.997, indicating that the explanatory variables account for nearly all variability in the dependent variable. All predictors are statistically significant at the p-value level below 0.001, confirming their relevance within the model. Since size classification was introduced through two dummy variables, the reference category in this case is represented by very large companies.

In terms of quantitative impact, the unstandardised coefficients show that an increase in intangible assets by one thousand euros is associated with an average increase in operating revenue of 1,273 euros, assuming all other variables remain constant. While this effect appears relatively low in comparison with other factors, it offers some indication of the economic return on intangible investments. In contrast, tangible fixed assets show an even smaller effect, with an increase of one thousand euros leading to an average operating revenue increase of 323 euros, suggesting a weaker direct link between physical infrastructure and company

Table 6: Linear regression results for the Slovak Republic (dependent variable: Operating revenue)

Variable	Unstandardised B	Standardised Beta	Sig.	VIF	R^2	Adjusted R^2	Sig. (Anova)
Constant	25,934.030		<0.001		0.998	0.997	<0.001
Intangible assets	1.273	0.042	<0.001	1.185			
Cost of goods sold	1.581	0.941	<0.001	2.495			
Tangible fixed asset	0.323	0.054	<0.001	2.864			
Size classification = SME	-25,684.230	-0.016	<0.001	1.478			
Size classification = Large company	-19,996.287	-0.015	<0.001	1.508			

Source: own processing

performance in this model. Among the remaining predictors, cost of goods sold stands out with the highest standardised coefficient of 0.941, confirming its key role in determining operating revenue levels. The negative coefficients for the dummy variables representing SMEs and large companies indicate that these categories report lower average operating revenues compared to the reference category of the very large companies.

Lastly, the Variance Inflation Factor (VIF) for all predictors remains below value 3, indicating the absence of multicollinearity in the model and confirming that the individual variables do not contribute redundant information. This strengthens the credibility and stability of the regression model.

The regression model for the Czech Republic also achieves a high level of explained variability, with an adjusted R^2 value of 0.987. All predictors are statistically significant at the p-value level below 0.001, indicating their relevance for explaining company operating revenues. The structure of the model, including the use of dummy variables for company size, remains consistent with the approach applied to the Slovak sample, where very large companies serve as the reference category.

Table 7: Linear regression results for the Czech Republic (dependent variable: Operating revenue)

Variable	Unstandardised B	Standardised Beta	Sig.	VIF	R^2	Adjusted R^2	Sig. (Anova)
Constant	26,980.681		<0.001		0.994	0.987	<0.001
Intangible assets	1.347	0.035	<0.001	1.109			
Cost of goods sold	1.695	0.957	<0.001	2.012			
Tangible fixed asset	0.121	0.027	<0.001	2.087			
Size classification = SME	-26,410.780	-0.021	<0.001	1.437			
Size classification = Large company	-21,191.255	-0.022	<0.001	1.485			

Source: own processing

From the perspective of impact quantification, the results show that an average increase in intangible assets by one thousand euros leads to an increase in operating revenue of 1,347 euros. This is a slightly higher effect compared to the value observed in the Slovak sample. For tangible fixed assets, the estimated impact is lower, with an increase of one thousand euros associated with an operating revenue increase of 121 euros. This suggests a relatively weaker direct effect of physical infrastructure on company performance. The strongest impact is again observed for the cost of goods sold variable, whose standardised coefficient of 0.957 highlights its dominant role in the revenue structure of companies. The negative coefficients of the dummy variables representing SMEs and large companies indicate that these categories reach lower average operating revenue levels than the reference group of the very large companies, which is consistent with the results obtained for Slovakia. The variance inflation factor values for all predictors remain below the commonly accepted threshold of 3, indicating no presence of multicollinearity and supporting the reliability and stability of the model.

4. Discussion

The results of this study confirm that intangible assets play an increasingly significant role in shaping company performance. The consistently higher growth of intangible assets compared to total assets across most size categories signals a structural shift in corporate asset composition toward knowledge-based resources. This observation corresponds with the conclusions of Dzenopoljac et al. (2024), who demonstrated a strong link between investment in intangibles and main financial indicators such as return on equity and EBITDA margin. In particular, the Slovak context stands out, as even SMEs displayed a statistically significant difference, underscoring a growing strategic orientation toward non-physical capital.

However, the relatively low effect sizes from the paired samples t-tests and only moderate correlation coefficients suggest that intangible assets, while influential, do not act in isolation. This finding resonates with the work of Hintzmann et al. (2021), who argue that firms in Central and Eastern Europe remain reliant on tangible inputs and may be in an earlier phase of transitioning toward models centred on intangible capital. The regression results in this study reflect this transitional stage. Although intangible assets exert a positive influence on revenue, variables such as cost of goods sold appear to play a more dominant role in explaining variations in performance outcomes.

Moreover, the lack of statistical significance in the Czech SMEs category, despite high average growth in intangible assets, points to important contextual factors. Dragomir (2024) emphasises that investment in intangible resources does not automatically lead to increased profitability, particularly in companies facing challenges related to managerial capacity or digital maturity. These findings highlight the importance of complementary organisational capabilities in fully leveraging intangible capital.

Company size also emerges as a key determinant in realising the benefits of intangible investments. Kapelko and Lansink (2013) found that larger companies tend to manage and exploit intangible resources more effectively, which aligns with this study's results showing more consistent impacts among very large companies. Nonetheless, as noted by Gostkowska-Drzewicka and Koralun-Bereznicka (2025), access to finance may limit the ability of some companies to invest in such assets, especially when external funding conditions are constrained.

Finally, Durst and Guldenberg (2009) draw attention to the long-term strategic function of intangible assets, which extend beyond immediate financial results. This perspective is echoed in the findings of the present study, particularly in the positive link between intangible asset accumulation and potential for growth. However, as Curea et al. (2022) caution, such potential is only realised when these investments are embedded within broader organisational strategies that support innovation, learning and transformation.

5. Conclusions

The study explored the role of intangible assets in shaping financial performance within manufacturing companies in Slovakia and the Czech Republic. The empirical analysis confirmed that intangible assets are growing at a faster pace than total assets, particularly in Slovak SMEs and very large companies. While the share of intangible assets in the overall capital structure remains relatively modest, the regression models demonstrate their positive contribution to revenue generation, often exceeding that of tangible fixed assets. Nonetheless, the explanatory power of intangible assets is not dominant, suggesting that their financial impact is conditional upon broader structural and organisational factors.

Notwithstanding the strong methodological framework, the study encounters multiple limitations. First, the exclusive focus on manufacturing companies may limit the

generalisability of results to other sectors with differing intangible asset profiles, such as services or information industries. Second, the analysis is constrained to company-level financial data, which do not fully capture qualitative dimensions such as innovation culture, strategic alignment or knowledge management practices.

Given these limitations, future research should consider incorporating additional variables that reflect organisational capabilities and strategic intent, possibly through mixed-method approaches that combine quantitative analysis with survey or interview data. Sectoral diversification and international benchmarking could also enhance the contextual understanding of intangible asset dynamics. Finally, further inquiry into the long-term effects of intangible accumulation could offer valuable insight into their strategic importance in sustaining competitive advantage, particularly in the face of digital and technological disruption.

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