
Operational Dimension of Internationalization: Tangible Fixed Assets in Polish Outward FDI

Robert Rogaczewski¹

¹University of Applied Sciences in Konin, Department of Economic Sciences,
Przyjaźni Str. 1, PL 62-510 Konin, Poland

doi.org/10.51505/IJEBMR.2026.10605 URL: <https://doi.org/10.51505/IJEBMR.2026.10605>

Received: May 11, 2026

Accepted: May 19, 2026

Online Published: Jun 05, 2026

Abstract

The article examines the internationalization of Polish enterprises from the perspective of their operational involvement abroad. Unlike approaches focused solely on the value of foreign direct investment, the analysis emphasizes expenditures on tangible fixed assets, treating them as an indicator of a more durable and less mobile form of foreign market presence. The study is based on data published by Statistics Poland (GUS) covering the period 2017–2023.

The findings indicate that expenditures on tangible fixed assets generally increased over the analysed period, despite noticeable short-term fluctuations. At the same time, the geographical distribution of investments remained uneven, pointing to a concentration of operational activity in selected countries. The results suggest that the internationalization of Polish enterprises is selective rather than evenly distributed across all foreign markets.

The analysis shows that considering the structure of investments provides a broader understanding of firms' foreign engagement than relying exclusively on aggregate FDI values. However, the adopted approach has certain limitations, as it does not capture the full composition of foreign investments. For this reason, the results should be interpreted with caution. Future research could benefit from the use of more detailed firm-level data and from extending the analysis to additional dimensions of internationalization.

Keywords: internationalization; foreign direct investment (FDI); tangible fixed assets; investment commitment; depth of internationalization; Poland

1. Introduction

In recent years, growing attention has been devoted to the foreign activity of enterprises, both in theoretical discussions and empirical research. Emphasis has been placed on foreign direct investment, which is commonly treated as one of the principal forms of international expansion. In most studies, the scale of such activity is assessed primarily through the value of capital flows or the stock of foreign investment, allowing researchers to estimate the general level of firms' engagement in international markets.

Although this perspective provides useful information, it does not always reflect the actual nature of foreign operations. The value of investment alone reveals little about whether a company develops long-term operational activities abroad or merely maintains less advanced forms of presence. For this reason, increasing attention is being paid to approaches that complement quantitative measures with analyses of investment structure and the ways in which invested capital is utilized.

One possible way of addressing this issue is through the concept of the depth of internationalization, understood as the degree to which a firm becomes embedded in a particular foreign market. Within this perspective, investments in tangible fixed assets are of particular importance, since their capital-intensive and relatively immobile nature may indicate a more durable form of operational presence abroad.

The aim of this study is to examine the internationalization of Polish enterprises through the lens of their involvement in tangible fixed assets abroad. Unlike analyses based solely on aggregated data concerning the value of foreign investments, the adopted approach focuses on a component of international activity that is more closely associated with the long-term operation of firms outside their home country. The analysis is based on data published by Statistics Poland (GUS) concerning enterprises with foreign affiliates. This makes it possible to capture both changes over time and the geographical differentiation of investments, although the use of aggregated data also imposes certain limitations on the scope of interpretation.

The article is structured as follows. The first part outlines the methodological assumptions of the study. The next section presents the results of the analysis concerning the dynamics and geographical differentiation of investment outlays. This is followed by a discussion of the findings in relation to the existing literature, while the final section summarizes the main conclusions and indicates possible directions for future research.

This study contributes to the internationalization literature by distinguishing between nominal internationalization, measured through aggregate FDI values, and operational internationalization, reflected in expenditures on tangible fixed assets. This distinction allows for a more precise assessment of the depth of foreign engagement, particularly in the case of firms from emerging economies, where international expansion is often selective and geographically uneven.

The case of Polish enterprises appears particularly relevant in the context of emerging economies, where the internationalization process often develops gradually and tends to involve selective engagement across foreign markets. At the same time, the study is subject to limitations resulting from the use of aggregated data, which do not allow for a full assessment of the structure of foreign investments at the firm level.

2. Literature review

2.1 Outward FDI and the Measurement Problem

Research on foreign direct investment has traditionally focused on the scale of capital flows, the level of investment, and the geographical location of multinational enterprises' activities. From a macroeconomic perspective, market-related, institutional, and cost factors are usually identified as the main determinants of inward and outward FDI (Dunning, 1991). Both the literature and empirical studies commonly assess the degree of internationalization through indicators such as the share of foreign sales, the number of foreign markets served, or the level of capital involvement abroad (Sullivan, 1994).

These measures generally answer questions related to "how much" and "where," while much less attention is devoted to the depth of market penetration or the extent to which firms become embedded in specific foreign locations. Buckley and Casson (2009), among others, emphasize that the overall value of foreign direct investment does not necessarily reflect the actual level of internationalization or the long-term operational presence of enterprises in foreign markets. This issue appears particularly relevant in the case of firms originating from emerging economies, where foreign expansion is often dynamic but selective. Under such conditions, an analysis based solely on capital flows may lead to misleading conclusions regarding the international position of enterprises.

More recent studies increasingly underline the need to broaden the measurement framework used in internationalization research. This includes the use of more comprehensive indicators that incorporate the structure of assets, the scale of foreign employment, or revenues generated abroad. It is also important to consider the geographical distribution of foreign activities and the number of markets in which firms operate when assessing the level of internationalization.

For this reason, it becomes necessary to distinguish a structural dimension of foreign direct investment that goes beyond purely financial considerations and makes it possible to capture the level of firms' investment commitment over time. Consequently, the analysis should not be limited to the scale of investment flows alone but should also account for the quality and depth of foreign engagement.

Although these classical contributions remain important, recent studies increasingly emphasize that aggregate FDI indicators do not fully capture the operational depth of firms' foreign engagement.

2.2 Depth of Internationalization as an Analytical Category

Research on internationalization increasingly emphasizes that the number of foreign markets alone is insufficient to assess the nature of a firm's expansion. While breadth refers to the number of foreign markets or the geographical scope of international activity, depth relates to the intensity and type of a firm's involvement within specific foreign markets (Velez-Calle et al., 2018). Batsakis and Theoharakis (2021) argue that these two dimensions are complementary,

although they may generate different strategic outcomes and affect firm performance in different ways.

A growing body of literature suggests that the depth of internationalization represents an independent strategic dimension that may significantly influence enterprise performance. He (2025), for example, argues that the depth of internationalization should not be evaluated solely through the intensity of investment, but also through the extent to which such investments are embedded within specific economic and network contexts. Similarly, Galizzi et al. (2025) note that the actual presence of a firm abroad depends on its position within business networks, relationships with local actors, and the degree of integration with the institutional environment. From this perspective, the depth of internationalization may be understood as the extent to which a firm's foreign activity is long-term, operational in nature, and integrated with its broader strategic objectives. This includes not only the scale and intensity of foreign capital involvement, but also the structure of assets and the degree of embeddedness within local environments. Zhang et al. (2026) further suggest that such strategies may positively influence firms' innovation capabilities, while emphasizing that the intensity of foreign engagement alone is insufficient; what matters is the way in which that engagement is utilized.

Consequently, the concept of internationalization depth refers not merely to the scope of a firm's presence in foreign markets, but above all to the character and durability of that presence. A firm may therefore operate in only a limited number of foreign markets while simultaneously maintaining a high level of capital and organizational commitment abroad.

2.3 Operationalization of Internationalization Depth

The depth of internationalization has been operationalized in various ways in the existing literature. The most used indicators include the intensity of foreign direct investment (FDI), the share of foreign capital in ownership structures, the scale of assets located abroad, and the level of control exercised over foreign affiliates. In this context, the structure of foreign assets becomes particularly important. A different level of commitment is reflected in the possession of financial assets than in the acquisition or development of production, distribution, logistics, or research and development assets. Studies on the structure of FDI indicate that investments in tangible fixed assets are generally more difficult to relocate and require a stronger degree of organizational embeddedness.

The depth of internationalization may therefore be understood as the extent to which a firm's foreign activity becomes an integral part of its business model. It encompasses not only the fact of being present in foreign markets, but also the level of capital commitment, the nature of assets involved, the scale of operations, and the durability of relationships with the local economic environment. Nguyen et al. (2025) argue that the depth of internationalization can be examined through different forms of foreign engagement, including exports, imports, and capital investments, although the effects of these forms may vary considerably. Another important direction in the literature concerns the relationship between internationalization depth and firm performance. As emphasized in numerous studies, these relationships are often nonlinear and

depend on organizational capabilities, international experience, and the institutional context in which firms operate (Contractor et al., 2003).

2.4 Nominal and Operational Internationalization

To strengthen the conceptual interpretation of internationalization depth, it is useful to distinguish between nominal and operational internationalization. Nominal internationalization refers to the presence of foreign capital involvement measured through aggregate FDI values, stocks, or flows. Although such indicators provide information about the scale of international activity, they do not necessarily reveal the extent to which firms are operationally embedded in foreign markets.

Operational internationalization, by contrast, refers to foreign engagement based on assets, infrastructure, resources, and activities that are more difficult to relocate and that require a longer-term organizational commitment. From this perspective, expenditures on tangible fixed assets may be treated as a proxy for operational internationalization, as they reflect investments in physical and durable resources used in foreign operations.

This distinction is particularly important in the case of firms from emerging economies, where foreign expansion may develop selectively and unevenly across markets. A firm may report substantial foreign investment values while maintaining only limited operational involvement abroad. Conversely, even a smaller value of investment may indicate deeper internationalization if it is connected with tangible fixed assets and long-term operational presence.

Therefore, the analysis of tangible fixed asset expenditures allows for a more nuanced assessment of internationalization depth than aggregate FDI indicators alone. It helps distinguish between capital-based foreign presence and more durable forms of operational embeddedness.

2.5 Asset Structure and Investment Commitment in Outward FDI

The structure of assets represents one of the key elements that makes it possible to distinguish a superficial foreign presence from genuine long-term investment commitment. In the context of foreign direct investment, the mere involvement of capital does not necessarily reflect the actual level of internationalization. Contemporary analyses of FDI increasingly emphasize the need to differentiate between nominal capital flows and the real operational activity of enterprises. According to UNCTAD (2025), the observed increase in FDI flows does not always correspond to a comparable rise in firms' operational engagement abroad. This is partly because a significant share of capital is transferred through financial centers and often takes an indirect form.

Financial investments may indicate the existence of foreign capital involvement, yet they do not necessarily imply a durable embedding of firms within a given market. By contrast, investments related to production, logistics, distribution, services, or research and development activities point to a higher level of strategic commitment. For this reason, tangible fixed assets may be treated as an indicator of deeper internationalization, since they require greater organizational

effort, a longer planning horizon, and stronger integration of foreign operations with the business model of the parent company (Zhang et al., 2026; He et al., 2026).

The larger the share of operational assets within the structure of foreign investments, the greater the likelihood that a firm's foreign presence is not only financial in nature, but also production-oriented, organizationally embedded, and relationally developed (Galizzi et al., 2025; Batsakis & Theoharakis, 2021). Supriyanto et al. (2025) additionally argue that the impact of FDI on economic development and firm performance is conditional upon factors such as the level of digitalization, absorptive capacities, and the institutional environment.

Considering the above, the analysis of internationalization depth should consider not only the scale of investments, but also their structure, sectoral concentration, and the degree of firms' operational embeddedness in foreign markets. Nguyen et al. (2025), among others, argue that the level of investment commitment may be assessed through the relationship between the scale of investment and its structure. The authors emphasize that a high value of FDI does not necessarily indicate strong foreign embeddedness, particularly when financial assets dominate the investment structure. On the other hand, smaller-scale investments may reflect a greater depth of internationalization when they involve operational tangible assets such as production facilities or research and development centres.

Existing studies continue to focus primarily on the value of foreign investments, while much less attention is devoted to their operational structure and the long-term durability of investment commitment.

3. Method

3.1 Research Objective and Research Approach

The aim of this study is to assess the depth of internationalization of Polish enterprises undertaking foreign direct investment, with particular emphasis on the structure of assets and the degree of investment commitment. The analysis assumes that the depth of internationalization is determined not only by the scale of capital involvement, but also by the structure and nature of assets located abroad.

Previous research on enterprise internationalization has focused mainly on quantitative dimensions of foreign activity, such as the value of FDI or the number of foreign markets served. However, the scale of investment alone is insufficient to evaluate the actual degree of internationalization, as it does not fully reflect the level of firms' operational embeddedness within foreign markets. In this context, the structure of assets becomes particularly important, since it allows a distinction to be made between investments of a financial nature and those connected with operational activity abroad.

The scope of the study covers an analysis of expenditures on tangible fixed assets undertaken by Polish enterprises with foreign affiliates during the period 2017–2023. The analysis has a

macroeconomic character and is based on aggregated data published by Statistics Poland (GUS). The study focuses exclusively on the operational dimension of internationalization, understood as firms' involvement in tangible fixed assets abroad. Other forms of foreign activity, such as exports, portfolio investments, or indirect financial flows, are not included in the analysis.

The geographical scope is limited to selected countries for which statistical data are available, making it possible to identify the spatial differentiation of investments. At the same time, it should be emphasized that the aggregated nature of the data restricts the possibility of conducting analyses at the level of individual enterprises and prevents a more detailed examination of asset structures.

The study applies a descriptive analysis of statistical data, including an examination of changes over time and comparisons across countries. The adopted approach is exploratory in nature and aims to identify the main trends and geographical differentiation of foreign investments. The objective of the study is not to test causal relationships, but rather to capture changes in expenditures on tangible fixed assets over time and across locations as an approximation of the operational dimension of internationalization. Owing to data limitations, the analysis focuses primarily on the interpretation of observed trends and investment structures.

3.2 Research Hypotheses

Considering the above considerations, it appears justified to adopt an analytical approach that considers not only the scale but also the structure of foreign investments. On this basis, the following research hypotheses were formulated:

- H1: Expenditures on tangible fixed assets of foreign affiliates showed an upward trend in the years 2017–2023.
- H2: Expenditures on tangible fixed assets were characterized by significant short-term fluctuations.
- H3: The operational internationalization of Polish enterprises is geographically concentrated, reflecting selective embeddedness in foreign markets.
- H4: Differences in tangible fixed asset expenditures across host countries indicate that Polish firms pursue selective rather than evenly distributed operational internationalization.

3.3 Operationalization of Variables

Due to the limited availability of detailed firm-level data concerning the structure of foreign assets, this study adopts an approach based on aggregated statistics published by Statistics Poland (GUS). The data relate to expenditures on tangible fixed assets within the framework of foreign direct investment.

The GUS dataset covers enterprises with foreign affiliates and is published in aggregated form. The information concerns expenditures on tangible fixed assets undertaken by foreign units of Polish enterprises. The analysis assumes that expenditures on tangible fixed assets may serve as an approximation of firms' operational investment commitment abroad. These expenditures

include investments in material assets such as production facilities, logistics infrastructure, and fixed assets used in operational activity. From a conceptual perspective, the depth of internationalization may be operationalized through the following indicators:

- Investment Commitment (IC) – the value of expenditures on tangible fixed assets abroad, treated as a measure of the level of long-term investment commitment.
- Intensity of OFDI (IOFDI) – the total value of outward foreign direct investment, measured either in terms of stock or flow.
- Relative Commitment (RC) – the ratio of expenditures on tangible fixed assets to the total value of outward foreign direct investment.

$$RC = \frac{\text{expenditures on tangible fixed assets}}{\text{the value of foreign direkt investment (FDI)}} \quad (1)$$

From a conceptual perspective, the RC indicator may be used to capture the structure of foreign investments by identifying which part of capital involvement has an operational character and which part may be financial or indirect in nature.

Certain limitations should also be acknowledged. The measures applied in the study are approximate and result from the limited availability of statistical data. It is not possible to fully distinguish between different categories of operational assets, such as production, logistics, or research and development assets, which inevitably constrains the scope of the analysis.

It should also be emphasized that the RC and IOFDI indicators were not employed in the empirical part of the study due to the limited availability of comparable statistical data concerning the full structure of foreign direct investment. As a result, these indicators remain conceptual and constitute part of the proposed analytical framework for measuring the depth of internationalization. In the empirical section, the analysis relies primarily on the IC indicator, understood as the value of expenditures on tangible fixed assets undertaken by foreign affiliates. It is assumed that this measure may serve as an approximation of the operational dimension of firms' investment commitment abroad.

In a broader perspective, the depth of internationalization could be measured using a synthetic indicator incorporating several dimensions of a firm's foreign engagement. Such a model may include the intensity of foreign assets, the share of operational assets, and the level of commitment to tangible fixed assets. From a conceptual standpoint, the model may be presented as follows:

$$DI = w_1 \cdot FA + w_2 \cdot OA + w_3 \cdot IC \quad (2)$$

where:

FA – represents the share of foreign assets in total assets,

OA – represents the share of operational assets in foreign assets,

IC – represents the share of tangible fixed assets in foreign assets.

Due to limited data availability, the DI indicator was not calculated in its full form in the present study. Consequently, the analysis employs only its narrower component, namely expenditures on tangible fixed assets. This category of expenditures is treated as an approximation of the level of long-term investment commitment. As a result, the applied measure does not capture all dimensions of internationalization depth but focuses on its most durable and operational aspect. To strengthen the assessment of geographical concentration, the study additionally applies the Herfindahl-Hirschman Index (HHI). The index is calculated as follows:

$$HHI_t = \sum_{i=t}^n s_{it}^2 \quad (3)$$

where s_{it} denotes the share of host country i in total expenditures on tangible fixed assets in year t .

Higher values of the HHI indicate stronger geographical concentration of operational investment expenditures, whereas lower values suggest a more diversified distribution across host countries. In a more advanced version of the model, the weights assigned to the internationalization depth indicator could be determined using principal component analysis (PCA). This method would make it possible to identify which components explain the variation in the depth of internationalization to the greatest extent. Due to the lack of sufficiently detailed data, however, PCA was not applied empirically in the present study. The use of PCA would be particularly justified in the case of panel data or firm-level datasets, as it would reduce the need for subjective weight assignment and increase the objectivity of the measurement process. In the context of this study, PCA should therefore be treated as a potential direction for future research rather than as a method applied empirically.

4. Results

4.1 Dynamics of Expenditures on Tangible Fixed Assets

The analysis of expenditures on tangible fixed assets undertaken by foreign affiliates (Table 1) indicates a clear upward trend over the long term despite considerable short-term fluctuations. Between 2017 and 2023, the value of expenditures increased from PLN 8,549.6 million to PLN 15,475.1 million, representing growth of more than 80%. Several distinct phases may be identified within the analyzed period. Between 2017 and 2019, investment expenditures increased steadily, which may indicate an intensification of the operational activity of Polish enterprises abroad. This trend was interrupted in 2020, when expenditures declined sharply to PLN 7,531.0 million, a change that may be associated with global economic disruptions. The decline can largely be linked to the COVID-19 pandemic, which contributed to supply chain disruptions, increased economic uncertainty, and a reduction in long-term investment decisions undertaken by firms. In the following years (2021–2023), a strong recovery and further growth in expenditures became visible, with investment outlays reaching their highest level in the entire analyzed period. In 2023, expenditures were more than 80% higher than in the base year (2017 =

100), confirming the growing importance of investments in tangible fixed assets as a component of firms' foreign activity. The obtained results suggest that, despite temporary declines, foreign investments in tangible fixed assets are characterized by a long-term orientation and an overall upward tendency, which may be interpreted as a sign of the gradual deepening of internationalization.

Table 1. Expenditures on Tangible Fixed Assets of Foreign Affiliates in the Years 2017–2023

Year	Expenditures (PLN million)	Annual change (%)	Index (2017 = 100)
2017	8549,6	–	100,0
2018	11373,8	33,0	133,0
2019	12578,2	10,6	147,1
2020	7531,0	-40,1	88,1
2021	10862,8	44,2	127,1
2022	13946,6	28,4	163,1
2023	15475,1	10,9	181,0

Source: own elaboration based on data from Statistics Poland (GUS).

The data presented in Table 1 indicate considerable short-term variability in investment expenditures, accompanied by a clear upward trend over the longer time horizon.

4.2 Operational Dimension of Investment Commitment

The analysis of expenditures on tangible fixed assets makes it possible to indirectly assess the nature of the investment commitment of Polish enterprises abroad. Investments in tangible fixed assets, due to their capital-intensive nature, limited mobility, and long-term orientation, are regarded as one of the key manifestations of firms' operational engagement in foreign markets.

The results indicate that investment expenditures increased over the analyzed period in the long run, suggesting a gradual strengthening of the operational involvement of Polish enterprises abroad. At the same time, the fluctuations and variability observed over time, particularly the decline recorded in 2020, demonstrate the sensitivity of operational investments to macroeconomic conditions. This also confirms that the process of expanding foreign activity is irregular and strongly influenced by changes in the economic environment.

Due to the limitations of the available data, it is not possible to directly determine the share of financial investments within total FDI flows. Therefore, the analysis focuses primarily on the operational dimension of internationalization, treating it as an approximation of the broader depth of internationalization.

4.3 Geographical Differentiation of Investment Expenditures

To present the geographical differentiation of investments, expenditures on tangible fixed assets in selected major host countries over the period 2017–2023 are presented below.

The analysis presented below focuses on selected major host countries for which comparable data on tangible fixed asset expenditures were available throughout the entire analyzed period (2017–2023). Consequently, the concentration measures presented in this section should be interpreted as approximations of the geographical distribution of operational investment expenditures rather than as measures covering the full population of host countries.

Table 2. Expenditures on Tangible Fixed Assets by Selected Countries in the Years 2017–2023 (PLN million)

Country	2017	2018	2019	2020	2021	2022	2023
Czechia	1578.6	1855.9	1641.2	2170.1	1859.7	2206.0	2427.7
United Kingdom	79.6	70.8	125.7	48.0	34.5	643.9	1970.8
United States	461.4	829.8	1010.2	481.1	860.8	705.7	638.4
Germany	483.5	752.9	581.9	639.2	359.2	446.6	584.9
Slovakia	118.4	86.0	220.3	172.6	270.2	370.8	420.1
Romania	276.7	367.0	249.2	203.3	238.7	344.9	327.2

Source: own elaboration based on Statistics Poland (GUS).

The data presented in Table 2 indicate a significant concentration of investments in selected European countries, accompanied by considerable differences in the dynamics of expenditures across individual locations.

The analysis of expenditures on tangible fixed assets across selected countries indicates a clear concentration of investments in a limited number of locations. This suggests that the foreign expansion of Polish enterprises does not develop evenly but is characterized by significant geographical differentiation. The highest investment expenditures are directed toward selected European countries, which may indicate a stronger operational embeddedness of firms within these economies. This applies particularly to countries characterized by developed infrastructure and strong economic linkages with Poland. At the same time, in some countries the scale of investment in tangible fixed assets remains relatively limited despite the presence of foreign capital. This may suggest that, in such cases, financial or organizational forms of investment dominate, requiring a lower degree of long-term operational commitment. These findings indicate that the depth of internationalization varies across locations and depends on the specific characteristics of target markets. Firms may therefore simultaneously develop operationally embedded activities in selected countries while maintaining a more superficial capital presence in other foreign locations.

To illustrate changes over time, expenditures on tangible fixed assets in selected countries during the period 2017–2023 are presented in Figure 1.

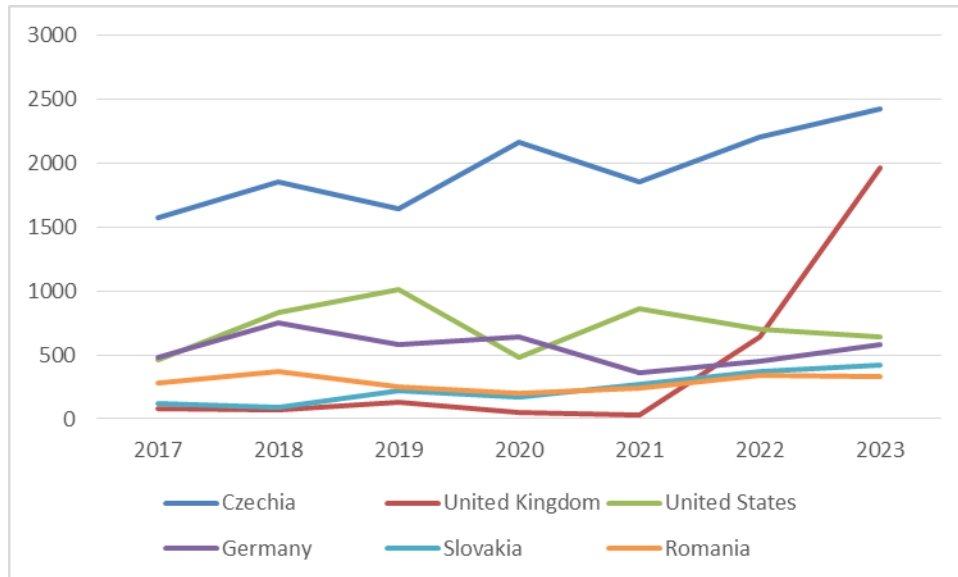


Figure 1. Outlays on Tangible Fixed Assets in Selected Major Host Countries, 2017–2023 (PLN million)

Source: own elaboration based on data from Statistics Poland (GUS).

Table 3. Geographical concentration of tangible fixed asset expenditures in selected major host countries, 2017–2023

Year	Share of Czechia (%)	Share of United Kingdom (%)	Share of Top 3 countries (%)	HHI
2017	52.65	2.65	84.25	0.373
2018	46.84	1.79	86.81	0.331
2019	42.91	3.29	84.53	0.310
2020	58.42	1.29	88.56	0.437
2021	51.32	0.95	82.58	0.369
2022	46.80	13.66	75.44	0.278
2023	38.14	30.96	80.57	0.254

Note: The HHI values were calculated using data for selected major host countries due to the limited availability of comparable long-term data for all foreign locations.

Source: own elaboration based on Statistics Poland (GUS) data.

The results presented in Table 3 confirm the geographically concentrated nature of tangible fixed asset expenditures. In the first years of the analysed period, Czechia accounted for the dominant share of expenditures among the selected host countries, which points to the importance of geographical proximity and regional economic linkages in shaping the operational internationalization of Polish enterprises. At the same time, the rapid increase in the share of the United Kingdom in 2022–2023 suggests that operational engagement may also shift dynamically

toward selected non-neighboring markets. The persistent dominance of Czechia suggests that operational proximity and regional supply-chain integration continue to play an important role in the foreign expansion strategies of Polish firms.

The temporary increase in concentration observed in 2020 may partly reflect the tendency of firms to prioritize geographically proximate and institutionally familiar markets during periods of heightened uncertainty associated with the COVID-19 pandemic. The sharp increase in expenditures in the United Kingdom after 2021 may indicate the growing importance of selected advanced markets despite higher institutional and operational costs.

The HHI values indicate that investment expenditures were not evenly distributed across host countries. The highest concentration was recorded in 2020, when the decline in total expenditures coincided with a particularly strong relative position of Czechia. In subsequent years, the HHI decreased, which may suggest a gradual diversification of operational investment locations. Nevertheless, the share of the top three countries remained high throughout the analyzed period, confirming that the operational internationalization of Polish enterprises was selective rather than evenly spread across foreign markets.

The data presented in the figure indicate substantial differences in the dynamics of investment expenditures across countries. In particular, the Czech Republic maintained a stable position as the primary destination for operational investments, while the United Kingdom experienced a rapid increase in expenditures in recent years. At the same time, investment levels in Germany and the United States were more moderate and characterized by greater variability. Taken together, the results suggest that the operational engagement of Polish firms differs considerably across host countries and changes over time depending on market conditions and strategic priorities. For this reason, the following section interprets the findings with reference to theoretical perspectives on internationalization depth and investment commitment.

Due to the limited availability of empirical data, the RC and IOFDI indicators were not employed in the quantitative analysis and remain part of the theoretical framework of the study.

5. Discussion

The obtained results demonstrate that both the scale and the geographical distribution of foreign investments undertaken by Polish enterprises change over time and differ across individual countries. This points to the differentiated nature of investment commitment, which cannot be fully captured solely through aggregated values. The analysis of expenditures on tangible fixed assets shows that, despite short-term fluctuations, operational investment commitment has generally increased over the longer term. This may suggest a gradual deepening of internationalization, understood as a stronger embeddedness of firms' activities within foreign markets.

At the same time, the results indicate that this process is not homogeneous. Differences in the level of investment expenditures across countries suggest that enterprises concentrate their

operational activities in selected locations, while maintaining a more limited investment presence in others. This implies that internationalization may take different forms depending on the target market, which is consistent with the literature emphasizing the importance of both the scope and the intensity of foreign engagement.

These findings support the distinction between nominal and operational internationalization. While aggregate FDI values may indicate the scale of foreign expansion, they do not necessarily reveal whether firms develop a durable operational presence abroad. The analysis of tangible fixed asset expenditures shows that only selected host countries become locations of deeper operational embeddedness. This means that outward FDI should not be interpreted automatically as evidence of deep internationalization.

In the case of Polish enterprises, operational internationalization appears to be selective and geographically uneven. The concentration of tangible fixed asset expenditures in a limited number of countries suggests that firms deepen their foreign presence primarily where market conditions, geographical proximity, institutional familiarity, or existing business linkages support long-term operational engagement.

These findings are consistent with the stream of research suggesting that the value of foreign direct investment alone does not fully reflect the nature of firms' international activity. As emphasized by Buckley and Casson (2009), as well as He et al. (2025) and Zhang et al. (2026), not only the scale of investment but also its structure and mode of utilization are of key importance. In this context, expenditures on tangible fixed assets may be treated as one of the manifestations of a more durable and operational form of foreign engagement.

At the same time, it should be noted that the analysis addresses only one selected dimension of internationalization. The absence of comprehensive data on the structure of foreign investments, particularly the distinction between financial and operational assets, limits the possibility of assessing the overall depth of internationalization in a definitive manner. For this reason, the findings should be interpreted cautiously and treated primarily as an approximation of the operational dimension of foreign engagement.

From this perspective, the observed tendencies appear partly consistent with the characteristics of enterprises from emerging economies, where internationalization is often selective and develops gradually over time (Luo & Tung, 2007). This suggests that firms may progressively increase their level of operational commitment by concentrating activities in selected foreign markets while maintaining a more limited presence in other locations.

In summary, the results indicate that an analysis based on expenditures on tangible fixed assets provides additional insights into the nature of internationalization, although it does not allow all its dimensions to be fully captured. This points to the need for further research incorporating more detailed data on asset structures and forms of firms' foreign engagement. At the same time,

the findings should be interpreted with caution, since the study does not enable full testing of causal relationships, but rather identifies observable tendencies and patterns.

5.1 Theoretical implications

The study offers several theoretical implications for research on internationalization. First, it contributes to the literature by distinguishing between nominal and operational internationalization. While nominal internationalization is reflected in aggregate FDI values, operational internationalization refers to more durable forms of foreign market engagement based on tangible assets and long-term operational presence.

Second, the study shows that the depth of internationalization may be examined not only through the scale of foreign investment but also through the structure of assets involved. Expenditures on tangible fixed assets provide a useful approximation of operational embeddedness because they reflect investments that are relatively less mobile and more closely connected with the actual functioning of firms abroad.

Third, the findings suggest that the internationalization of firms from emerging economies should be understood as a selective and uneven process. Polish enterprises do not appear to deepen their operational engagement uniformly across all foreign markets. Instead, they concentrate tangible fixed asset investments in selected locations, which indicates differentiated levels of embeddedness across host countries.

5.2 Practical implications

The findings also have practical implications. For policymakers, the results suggest that the quality of outward FDI should be assessed not only by the value of capital invested abroad but also by the type of assets created and maintained in foreign markets. Investments in tangible fixed assets may indicate a more durable and operationally embedded form of internationalization than purely financial capital flows.

For managers, the results underline the strategic importance of tangible fixed asset investments in foreign expansion. Such investments usually involve higher commitment, lower reversibility, and stronger integration with local market conditions. Therefore, decisions concerning tangible fixed assets abroad should be treated as indicators of long-term strategic engagement rather than short-term market presence.

6. Conclusions

The aim of the study was to examine the internationalization of Polish enterprises from the perspective of their actual operational engagement abroad. To achieve this, the analysis employed data on expenditures on tangible fixed assets undertaken by Polish enterprises operating internationally. Although such expenditures do not capture the full scope of foreign investment activity, they make it possible to identify a more durable dimension of firms' foreign involvement. The analysis indicates that, over the longer term, these expenditures displayed an

upward trend despite noticeable fluctuations across individual years. This may suggest a gradual strengthening of firms' operational presence in foreign markets.

At the same time, the distribution of investments across countries remained uneven, implying that enterprises tend to concentrate more advanced forms of activity in selected locations rather than develop them simultaneously across all directions of expansion. Taken together, the results suggest that outward FDI values alone may overstate the actual depth of firms' foreign engagement. Only by taking the structure of investments into account is it possible to better distinguish between cases of genuine operational presence and those involving less embedded forms of foreign engagement.

The main contribution of this article is the distinction between nominal and operational internationalization. The study demonstrates that expenditures on tangible fixed assets may serve as a useful proxy for identifying deeper and more durable forms of foreign market engagement. This distinction is important because the value of outward FDI alone may overstate the actual degree of internationalization if it does not translate into operational assets and embedded activities abroad.

It should be clearly emphasized, however, that the adopted approach has certain limitations. The analysis is based on aggregated data and does not allow investments to be separated according to their detailed structure, including a full distinction between financial and operational components. In addition, the concentration measures were calculated using data for selected major host countries because comparable long-term data for all investment locations were not available. Therefore, the reported HHI values should be interpreted as indicative rather than exhaustive measures of concentration. For this reason, the conclusions presented in the study should be treated as an approximation rather than a comprehensive assessment of the level of internationalization.

Future research could benefit from the use of more detailed data, particularly at the firm level, which would allow for a more precise assessment of how assets are utilized abroad. It would also be valuable to extend the analysis through comparisons with other countries and by taking sectoral differences into account, as these factors may significantly influence both the forms and the scale of international engagement.

Regarding the proposed research hypotheses, the obtained results allow for their partial verification. Hypothesis H1 is supported by the observed upward trend in expenditures on tangible fixed assets during the period 2017–2023. H2 also finds support, as the data reveal substantial short-term variability, particularly during the COVID-19 pandemic. H3 may likewise be regarded as confirmed, since investment expenditures were concentrated in a limited number of countries. Finally, H4 receives partial support, as the geographical differentiation of investments may indicate the selective nature of firms' operational engagement abroad.

Overall, the study shows that the internationalization of Polish enterprises should be interpreted not only through the scale of outward investment but also through the operational character of that investment. The concentration of tangible fixed asset expenditures in selected countries confirms that foreign expansion is selective, uneven, and strongly dependent on the type of assets involved.

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