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Foreign Direct Investment in Poland and Changes in the Branch Structure

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Abstract:

Purpose: *The aim of the work is to present changes in the inflow of foreign direct investments (FDI) to Poland, taking into account the structure of the industry. An additional goal is also to indicate the variation in the inflow of capital to industries with a specific degree of technological advancement.*
Design/Methodology/Approach: *The analysis covered the years 2005-2017 to capture, among others the impact of the economic crisis. The analysis for the indicated period was based on data from the National Bank of Poland.*
Findings: *The value of the foreign direct investments flow to Poland varied in 2005-2017. The value of FDI flows in 2008-2010 was similar to that recorded in the years 2014-2016. Three sectors appear to be dominant in cumulative value industrial processing (38.1%), wholesale and retail trade (19.6%) and financial and insurance services (11.7%). The value of foreign capital flow in 2005-2017 into particular types of business activities changed in both absolute and relative terms. The aggregated value of liabilities due to FDI in the sector of high and medium-high tech tended to rise up to a point where it was higher in 2017 than the value in the low-tech sector.*
Practical Implications: *The results of the research indicate which sectors attract foreign capital the most and to what extent the inflow of capital to a given country reflects the behavior of investors on the global market.*
Originality/Value: *The study confirms the need to monitor FDI in individual sectors. It is possible, based on forecasts of changes in the economic situation in the world, to predict the behavior of investors in individual markets.*

Keywords: *Foreign Direct Investment, investment structure, FDI distribution.*

JEL codes: *F21, F23.*

Paper type: *Research article.*

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1. Introduction

The global economy has been changing constantly. An important turning point for the countries of Central and Eastern Europe was the decision to transform from a centrally planned economy towards a market economy. In practice, for the countries in transition, this process meant opening up to cooperation with institutions and companies from around the world. Currently, there is an increasing tendency for enterprises and organizations to form collaborative networks in the production of goods and services.

During the domination of the socialist system the Central and Eastern European countries (CEECs) were regarded as unattractive locations for foreign direct investment (FDI). This was caused by restrictive regulations, instability of socialist economies, and often inability to invest foreign capital. Moreover, countries with a democratic form of government attract more foreign flow (Jensen, 2003). There were many reasons to liberalise CEE economies, including support for economic development (Heller and Wierzbicka, 2009; Kobrin, 2005). As a consequence of the decision to start the transformation, these countries have made efforts to integrate with the European structures. They have also been stimulated by the pre- and post-accession EU support. These changes have led to the formation of completely new conditions underlying the economic development, including the foundation of companies with foreign capital (Gauselmann *et al.*, 2011) and significantly increasing international competitiveness of the whole region (Cheba and Szopik-Depczyńska, 2017). They constitute a distinct group of business enterprises, whose specific nature arises from their motivation to start and develop business and, on the other hand, from their high potential sensitivity to changes occurring on the international markets (Lee and Tan, 2006).

Considering the above conditions which underlie the inflow of foreign capital in the form of direct investments, it is essential to make a diagnosis and an assessment that would involve changing values of this capital in time and changes in the structure of investments in terms of technological intensity. The main purpose of this study has been to analyse and evaluate changes in the foreign direct investments in Poland, in total and divided between branches, which have been induced by the global economic crisis.

The analysis included changes in FDI flows into Poland, changes in Poland's liabilities due to FDI, value and structure of FDI flows in branches according to the technological intensity criterion and the branch structure of FDI.

2. Literature Review

Multinational enterprises, through foreign direct investments, become organizers and regulators of resource allocation and production activities in many national economies

(Chen *et al.,* 2020). FDI flows to specific locations and industries. Each investment is made by a company operating in a particular industry sector.

In the literature on the subject many theories explaining FDI determinants can found, such as the Dunning's OLI paradigm (Dunning *et al.,* 2007) or Kojima and Ozawa theory (1984). Current research indicates that among the determinants of undertaking FDI the search for resources, responding to the demand for new services, as well as seeking opportunities to reduce the costs of activity can be noticed. The search for resources is expressed i.e. by purchasing agricultural land - outsourcing of production and investment in agricultural land areas in foreign countries via large scale FDI (Hirsch *et al.,* 2020), as well as location of FDI in oil-rich countries (Alfalih and Hadj, 2020) or mining sector (Vivoda, 2011). The answer to the demand for new services means for example investing in the energy sector. The installation of power plants requires large capital outlays and sophisticated technological solutions, what is brought via FDI (Mahbub and Jongwanich, 2019). Currently, the renewable energy industry is one of the fastest growing sectors attracting a great amount of foreign direct investment (Keeley and Matsumoto, 2018).

The CEE countries, after decades of technological neglect during the socialist system, are very favourable to foreign investment. FDI is often perceived as an essential part of economic growth. It is believed that FDI inflows bring not only much-needed additional foreign capital, but also new technological solutions, know-how, managerial and marketing skills. Moreover, horizontal, and vertical knowledge spillovers via backward or forward linkage with local firms are expected (Javorcik, 2004, Alfaro, 2017). As a result, decision makers have facilitated market entry, eliminated, or lowered barriers in new sectors for foreign investment and provided a number of investment incentives, such as tax vacations or other support (Osei and Kim, 2020). Along with the host of benefits, FDI may lead to a spatial and branch concentration of economic activity (Nazarczuk and Lizińska, 2009; Zhang *et al*., 2014). Empirical evidence regarding the nexus between FDI and growth shows that the benefits of FDI vary across sectors (Osei and Kim, 2020).

However, the acquisition of investments must be reviewed, and investments made in individual sectors must be carefully monitored, as FDI can also have negative effects. The decision to liberalise the FDI policy assumes that the benefits of increased FDI flows will outweigh the costs, which does not always work in reality. Developing countries hope to achieve growth at the cost of ecological balance (Zafar *et al.,* 2020). Hence the need to constantly control capital inflows to individual sectors of the economy.

It is well known that multinational companies focus on branches which demonstrate a high R&D factor (Markusen, 1995; Cieślik and Hien Tran, 2019). It is also claimed that multinational corporations rely to a large extent on non-material assets, such as excellent technology or intellectual assets, so as to compete successfully with local

companies, which are more familiar with the host country's environment (Zygmunt, 2019; Mačerinskienė and Survilaitė, 2019; Markhaichuk and Zhuckovskaya, 2019). It is worth to mention, that most countries receive the benefits of innovation and new technologies through technology transfer (Sultana and Turkina, 2020). The structure of branches (also including the degree of technological intensity) is an important component of any analysis of foreign direct investments flows (Gorynia *et al.*, 2010). The importance of the scale and structure of FDI inflows into developing countries can be attributed to the fact that FDI creates opportunities to acquire more efficient technologies from abroad and to ensure technological transfers to local companies (Nazarczuk and Krajewska, 2018; Sekuloska, 2018).

The flow of FDI inflows to countries is also not constant. Recent analyses of changes in the FDI value worldwide have been increasingly often orientated towards issues of economic crises (Lizińska *et al.*, 2014; Warżała, 2014). When companies meet an uncertain and crisis situation, they may choose a "wait and see" attitude, which means postponing investment decisions (Dixit and Pindyck, 1994). In this situation the inflow of foreign investment is visibly reduced. However, once multinational companies have already committed their capital, they may make active attempts to interfere with the political environment of the host country (Feinberg and Gupta, 2009) or move production to more favourable locations through an internal network of subsidiaries (Lee and Song, 2012). This fact also confirms the need to monitor FDI in individual sectors, as a sudden withdrawal of foreign capital can threaten the entire sector of the national economy.

3. Research Methodology

The time period analysed covered the years 2005-2017, as this would include a few years before the crisis as well as the time of overcoming the economic decline. The author hoped that the chosen timeline would enable them to observe opposing (or not) tendencies depending on the degree of technological advancement in the branches supported by direct foreign investments.

Another important component of an analysis and assessment of the inflow of foreign capital in the form of direct investment, especially in the context of a given country's development manifested by its entering subsequent stages on the IDP, is the structure of the incoming foreign capital, including the degree of technological intensity in the industrial processing sector. The following sections are distinguished with respect to technological intensity: high tech, medium-high tech, medium-low tech and low tech (Sciences and technology… 2018; Pietrucha *et al*., 2018).

Work on developing international, standardised methodological recommendations in the field of statistical analyses concerning high technology have been coordinated by the OECD. This organisation currently applies a classification of industrial domains based on analyses concerning the R&D component, which are referred to in the

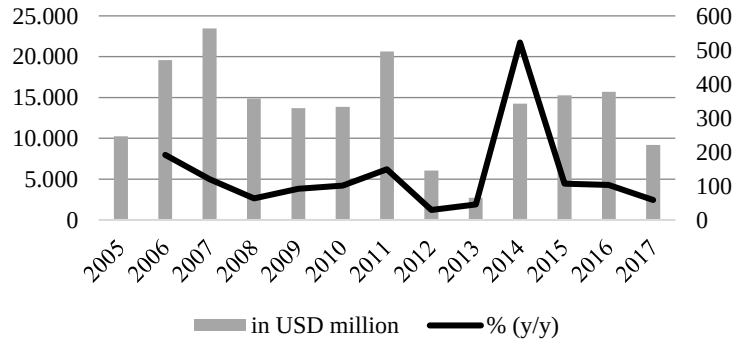
literature as the classification of industries based on the technological content. Eurostat has extended the term 'high technology' to encompass services as well, distinguishing high technology domains. Analyses concerning high tech usually apply two methods: according to branches of industry (the industry approach) and according to good manufactured (the product approach). In our study, we have employed the classification based on R&D intensity to identify the degree of technological advancement in industrial manufacturing and services (Sciences and technology…2018).

Our comparison of the inflows of foreign capital in the form of direct investments first of all consisted of the aggregation of the following data: value of the inflow and dynamics of changes in the inflow of FDI into Poland in 2005-2017, value of Poland's liabilities due to FDI and the dynamics of their changes in 2005-2017, structure of the value of the incoming capital according to branches in 2017, structure of Poland's liabilities and revenue connected with FDI according to types of economic activity, as well as the value and structure of liabilities of Poland due to FDI including the division into branches with different intensity of technological advancement in the industrial manufacturing and high tech services, and structure of Poland's liabilities due to FDI in high and medium-high tech industrial processing branches.

4. Discussion of results

While analysing changes in the value of FDI flowing to Poland over 2005-2017, it is possible to distinguish such stages as: dynamic growth in 2005-2007, slow growth in 2014-2016 and decrease of varied intensity in the remaining years (Figure 1).

Figure 1. *Inflows and dynamics of changes in FDI inflow to Poland in 2005-2017*



Source: *Own calculations based on NBP data, Foreign direct investment in Poland (for each year).*

Most of the foreign capital in the form of direct investments reached Poland in 2007. The total worth was 23 465 million USD, which to a certain extent was stimulated by Poland's access to the EU structures.

Integration processes are among the ongoing significant changes, although it is extremely difficult to identify the effect of particular integration stages on the transfer of capital in the form of direct investments. Analyses conducted thus far, covering various time periods, have failed to resolve unambiguously the problem of dependences between the EU integration process and FDI flows (Dunning, 1987; Egger and Pfaffermayr, 2002). The comparative studies carried out by Eleni and Piteli (2009) among the developed EU and non-EU countries reveal distinct differences in the FDI determinants between these groups of states.

Due to the scale of capital being withdrawn from Poland (-3 388.8 million USD), mostly connected with transit capital, the highest decline in the value of FDI flows into Poland was observed in 2012, when the FDI value equalled less than 30% of the value of FDI inflow in the previous year. The following year, 2013, was a time when the value of FDI flow[4] continued to decrease, as in the preceding year, due to the large value of the capital shares withdrawn from Poland (-7 279.6 million USD).

This can be due to the fact that among significant determinants shaping investment processes pursued by businesses with foreign capital there is their dependence on the strategies and decision-making processes implemented by parent enterprises and verified later in response to changes in the international environment induced for example by an economic crisis. Mechanism for strategic management in crisis situations is the instrument for the prevention and liquidation of crisis phenomena; it increases the efficiency of the adoption and realization of strategic plans to counter crises (Groh, 2014).

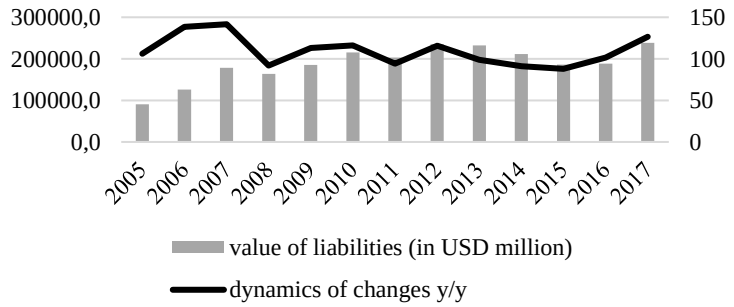
Over the past years, the greatest decline in FDI has occurred in developed countries, where in 2008 FDI fell by 25% on average, compared to a 15% decrease on the global scale. Unlike in economically developed countries, the value of FDI in developing countries rose by 7%, while in the countries of South-Eastern Europe and in the Commonwealth of Independent States it increased by 24%. However, there is no evidence to prove that the recent economic crisis has had any effect on the inflow of FDI into the EU member states (Kalotay and Filipow 2009). Already earlier research results indicated that the firms' willingness to increase their capacity and to invest abroad will be restricted by the financial crisis especially in developing countries. Consequently, FDI will return to ordinary processes when the financial crisis ends

[4]*It needs to be remembered that the data on FDI in Poland in 2013 were for the first time prepared on the basis of new OECD standards applying to statistics of direct investments, as described in the Benchmark Definition of Foreign Direct Investment 4th ed. (BD4). The most significant change consisted of a new classification of revenue, transactions, and balances of receivables and liabilities between entities in the groups of entities with capital links. The new approach facilitates making a better evaluation whether a given investment is controlled abroad or at home. Because of the changes started in 2013, data from the previous years and current data cannot be compared directly. Such data are no longer directly comparable with the direct investments presented in the balance of payments and the international investment position, broken down into assets and liabilities (Polskie inwestycje zagraniczne…2015).*

(Ucal *et al.*, 2010). Significant relationships between the inflow and outflow of foreign capital and, on the other hand, an economic crisis is emphasised by Aizenman *et al.* (2013). It can also be noted that the value of FDI flows into Poland in 2008-2010 was similar to that recorded in the years 2014-2016. In both these time periods, the said values were the closest to the average value of foreign capital flowing into Poland in the form of direct investments (13813.4 million USD) over the entire time period covered by this research.

The value of Poland's liabilities due to foreign direct investments over the analysed time period 2005-2017 rose from 9 0876.0 million USD to 23 8482.8 million USD in 2017 (Figure 2). However, during that time it was possible to notice the years when the value of liabilities due to FDI was lower in comparison to the preceding year (2008/2007, 2011/2010 and 2015/2014). A frequent cause of the decrease is depreciation of the Polish zloty, which could be observed for instance in 2011, although in the same year a considerable outflow of foreign capital was noted, too.

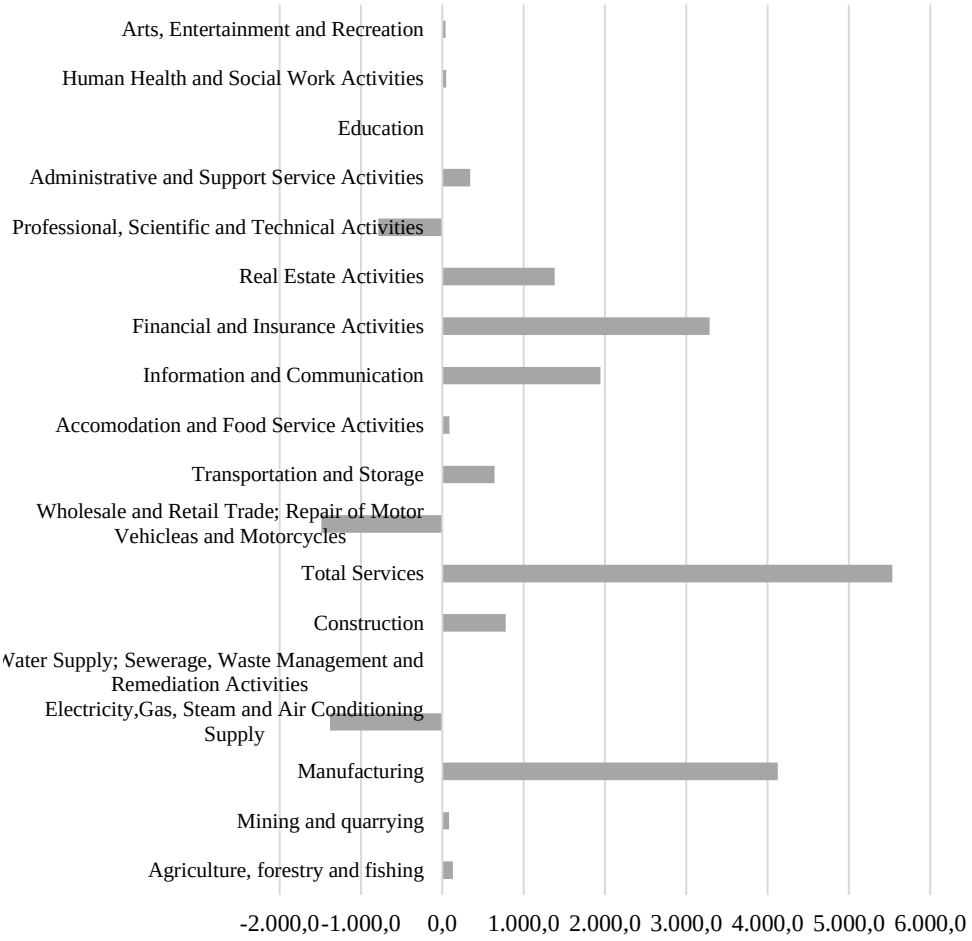
Figure 2. *Value and dynamics of changes in Poland's liabilities due to FDI in 2005-2017*



Source: *Own calculations based on NBP data, Foreign direct investment in Poland (for each year)*

The prevalent sectors in the foreign direct investment flows noted in 2017 in Poland were services and industrial processing, although the financial and insurance sector had its fair share as well. The outflow of foreign capital was noted among the entities involved in wholesale and retail trade, including the repair of motor vehicles and motorcycles, generation and distribution of electricity, gas, water steam and air to air conditioning systems, and from professional, scientific and technical activities (Figure 3). When considering the accumulated worth of foreign capital divided between types of business activities, three sectors appear to be dominant: industrial processing (38.1%), wholesale and retail trade (19.6%) and financial and insurance services (11.7%). The value and structure of foreign capital invested in a given country as direct investments are shaped under certain influences on different levels (e.g. the host and native countries), in a given company and its environment, or by other entities and circumstances, for example the opportunities of earning and investing revenue in a given country.

Figure 3. *Foreign direct investment (inflows) in Poland in 2017 broken down by economic activity of direct investment enterprise (in USD million)*



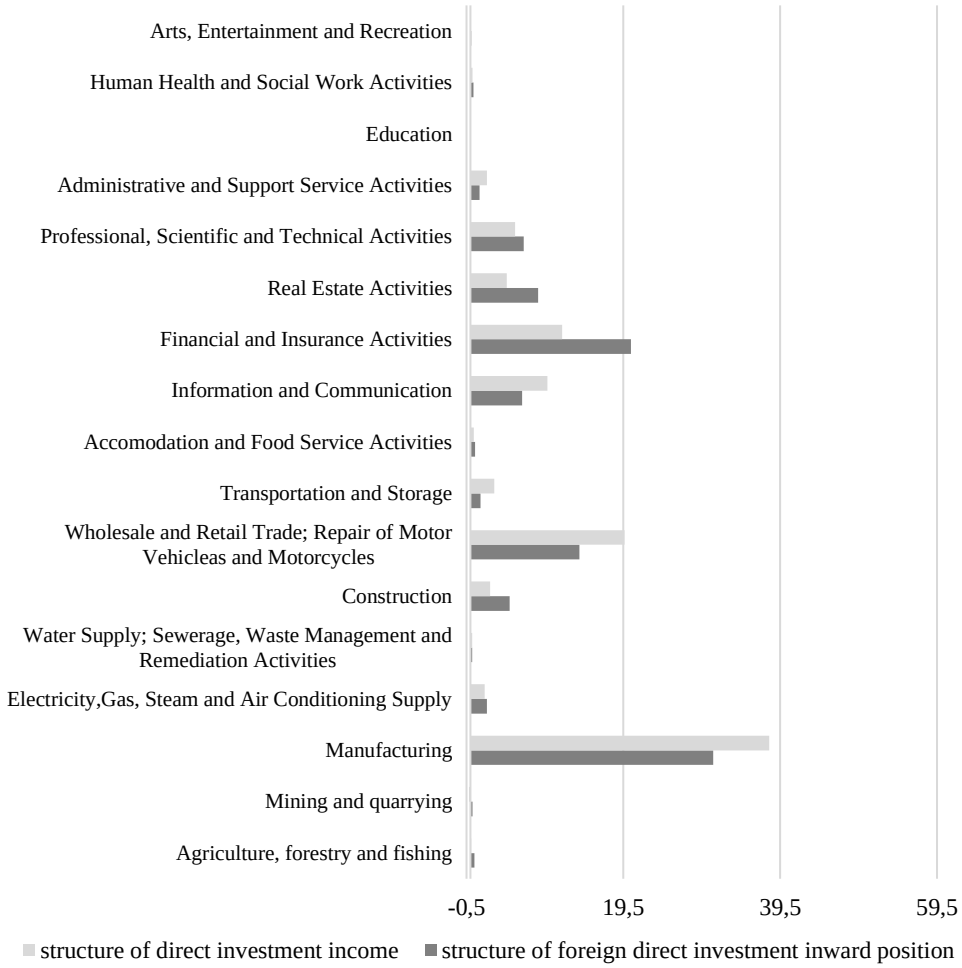
Source: *Own calculations based on NBP data, Foreign direct investment in Poland in 2017.*

While comparing the structure of the foreign capital invested in Poland with the structure of revenue earned in particular types of business activities in 2017, it appears that the values of the above parameters were not always identical. This can indicate that there are various possibilities of earning revenue. It is obvious that particular types of businesses may vary in their capabilities of generating income in a given country. This factor can either encourage or discourage the allocation of foreign capital in certain types of economic activity.

Among the three dominant types of economic activities in Poland with respect to the amount of foreign capital invested, it is possible to note that in the financial and insurance services sector the percent share of earned revenue (11.7%) is less than the value of invested capital (20.5%) (Figure 4). The data collected by the NBP prove that

the value of foreign capital flow in 2005-2017 into particular types of business activities changed in both absolute and relative (changing relationships between values of foreign capital flowing to specific types of economic activities) terms (Figure 5). In all the years submitted to our study, the highest value of liabilities due to FDI was observed in the low-tech industrial processing sector. However, it is worth noticing that the aggregated value of liabilities due to FDI in the sector of high and medium-high tech tended to rise up to a point where it was higher in 2017 than the analogous value in the low-tech industrial processing sector. The specification prepared for the years 2013 and 2017 also included high-tech services. The value of liabilities in that case was nearly twice as high as the value of liabilities arising from FDI in high-tech industrial processing.

Figure 4. *Structure of foreign direct investment inward position and incomes in Poland in 2017 broken down by economic activity of direct investment enterprise*

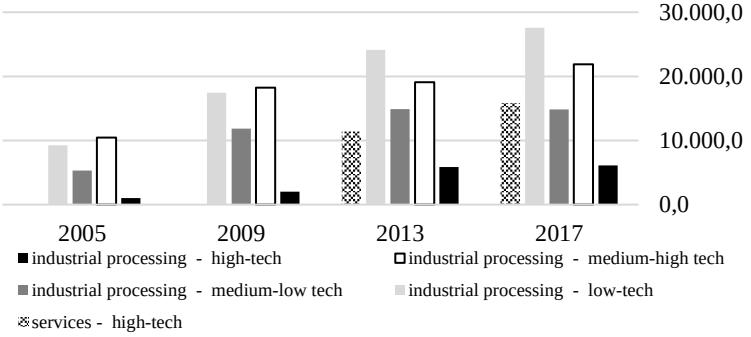


Source: *Own calculations based on NBP data, Foreign direct investment in Poland in 2017.*

Based on an in-depth analysis of changes in the structure of liabilities due to FDI, the following changes can be identified over the years 2005-2017: the share of services in this structure increased (from 57.7% to 60.0%), the share of industrial processing decreased (from 36.6% to 30.9%), and the share of liabilities due to FDI in high-tech services (11.1%) was higher than the share of liabilities in high-tech industrial processing (8.2%) (Figure 6). As indicated Witkowska (2011) the greatest interest of foreign investors is targeted at the tertiary sector — i.e. services. The shift in the sector structure of global cumulative inward FDI as observed over the long term was at the cost of foreign investment in manufacturing.

With regard to the aggregated share of liabilities due to FDI in high and medium-high tech sectors, the total liabilities of industrial processing increased from 35.0% in 2005 to nearly 38.0% in 2017. The year 2009 can be distinguished among the other years analysed as the one when the share of liabilities in these two sectors was the lowest. A possible reason may have been a change in the capital inflow in the previous year, although another cause could have been a change in currency exchange rates.

Figure 5. *The value of Poland's liabilities due to FDI, including divisions with a different degree of technology in the section of industrial processing and high-tech services (in USD million)*

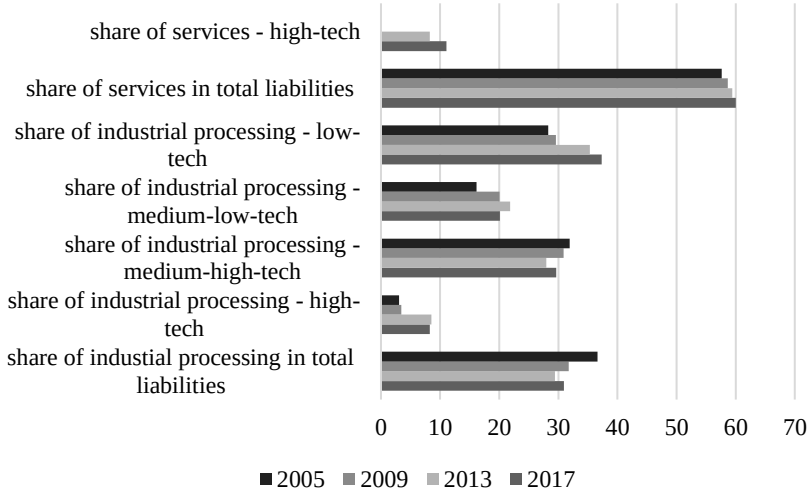


Source: *Own calculations based on NBP data, Foreign direct investment in Poland (for each year).*

5. Conclusion

The value of the foreign direct investments flow to Poland was very varied in 2005-2017. The highest value was observed in 2007, which to a certain extent was stimulated by Poland's access to the EU structures. Due to the scale of capital being withdrawn from Poland, mostly connected with transit capital, the highest decline was observed in 2012. It can also be noted that the value of FDI flows into Poland in 2008-2010 was similar to that recorded in the years 2014-2016. During the years 2005-2017 it was possible to notice the years when the value of liabilities due to FDI was lower in comparison to the preceding year. A frequent cause of the decrease is depreciation of the Polish zloty.

Figure 6. *The structure of Poland's liabilities due to FDI, including divisions with a different degree of technology in the section of industrial processing and high-tech services (in %)*



Source: *Own calculations based on NBP data, Foreign direct investment in Poland (for each year).*

The prevalent sectors in the FDI flows noted in 2017 in Poland were services and industrial processing, although the financial and insurance sector had its fair share as well. Three sectors appear to be dominant in cumulative value: industrial processing (38.1%), wholesale and retail trade (19.6%) and financial and insurance services (11.7%). The value of foreign capital flow in 2005-2017 into particular types of business activities changed in both absolute and relative (changing relationships between values of foreign capital flowing to specific types of economic activities) terms.

The highest value of liabilities due to FDI was observed in the low-tech industrial processing sector. However, it is worth noticing that the aggregated value of liabilities due to FDI in the sector of high and medium-high tech tended to rise up to a point where it was higher in 2017 than the analogous value in the low-tech industrial processing sector. The specification prepared for the years 2013 and 2017 also included high-tech services. The value of liabilities in that case was nearly twice as high as the value of liabilities arising from FDI in high-tech industrial processing. The direction of changes can be seen as an important in the context of Investment Development Path (IDP). Despite the decline in the inflow of foreign capital during the economic crisis, the share of this capital in the high-tech branches in Poland is increasing. It confirms that multinational companies focus on branches which demonstrate a high R&D factor.

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