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Impact of the Financial Structure of FDI Inflows on Economic Growth in Poland[1]

Introduction

A majority of studies have treated foreign direct investment (FDI) as a monolithic rather than a multidimensional variable. FDI inflows (financial flows) include such three components as: equity, reinvestment of earnings, and debt instruments. These components of FDI flows depend on decisions of foreign investors which are made in the knowledge of internal determinants of their companies' development and local conditions in their host country. Thus, particular components of FDI may cause different effects on economic growth (as regards its size and variability over time) in the investor's country as well as in the host country.

The reason for undertaking this analysis is the fact that both the theory of economics and empirical studies take into account the general impact of FDI on economic growth only. FDI is usually treated as a monolithic unit of foreign capital, whereas, in the author's opinion, analysis of FDI components' impact on GDP is important due to its practical applications. Components of FDI which exert the strongest pro-growth impact may become priority tools in the economic policy of a host country, which can concentrate not only on attracting FDI in general but also focussing on an identified component (financial instrument). Moreover, local conditions in the host country could be adjusted to maximize inflow of the most effective FDI components.

The aim of this paper is to analyse of impact of financial components of foreign direct investment (FDI) inflows on economic growth in Poland in the years 2004–2018, with special emphasis on the role of reinvestment of earnings.

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The following hypothesis has been put forward: As FDI flows into a country and enters the successive stages of its profitability life cycle, impact of equity on economic growth decreases, while the importance of reinvestment of earnings rises.

This study proceeds as follows. Section 1 provides a review of literature and empirical studies on the relationships between FDI and economic growth. Section 2 describes analytical application of different presentations of direct investment – according to the OECD and IMF methodology. Section 3 shows data and research procedure. Empirical analysis based on the VECM model, including also impulse response functions and decomposition of variables, together with a summary of results, is presented in section 4. Concluding remarks are provided in the last section.

1. Literature review and empirical studies

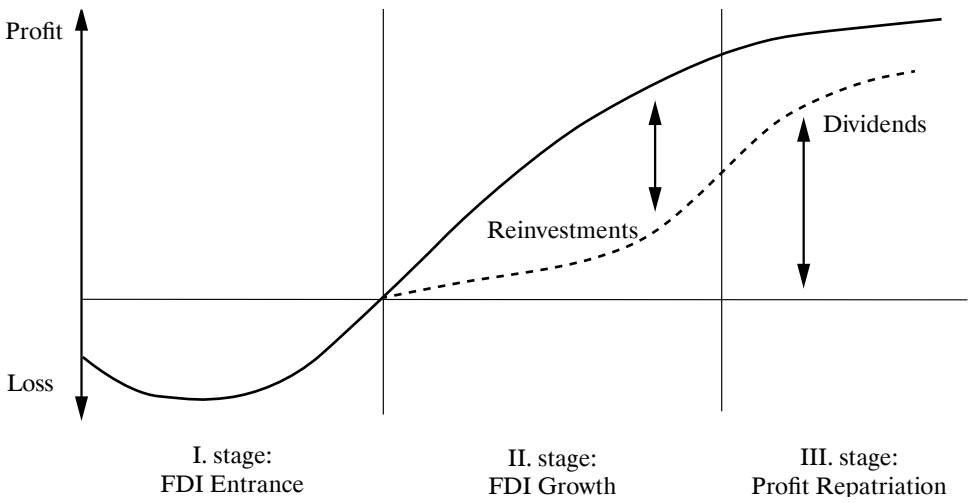
In the literature, various aspects of the financial structure of FDI inflows to a host economy can be found in various areas, e.g. the life cycle of FDI (for FDI inflows), the profitability life cycle of FDI (for inward FDI stocks), and international business strategies (IBS).

In the theory of the life cycle of FDI, three stages of the cycle and changes in the structure of FDI inflows are isolated (Figure 1):

I. FDI entrance – the initial effort involves the need to incur considerable investment (purchase of shares/equities, assets, contribution to tangible assets). This means a negative yield rate. The foreign investor's income will only appear in the second phase of FDI growth.

Figure 1

The life cycle of FDI



Source: Tomšik (2009).

II. FDI growth – in this stage, there is an expansion of activities and realization of new investments through reinvestment of earnings, and the first dividend payments are generally made.
III. Repatriation of profits – their significance is clearly rising against the decline in reinvestment of earnings. After the stabilization period, the scale gradually decreases, leading in the final stage to closing-down of FDI (Ando and Modigliani 1963, Tomšik 2009).

Similarly, in the theory of the FDI profitability life cycle, according to Brada and Tomšik (2003), this path refers to FDI inward stocks, because this is the cumulative value of FDI inflows and cumulative FDI profitability:

1. Stage 1 (entry) is connected with expenditures of foreign investors in a host country and means negative profitability (increased equity).
2. At stage 2 (growth), profit peaks at around the 6^{th} year of the cycle (this means increased reinvested earnings and debt instruments).
3. At stage 3 (investment repatriation) is connected with distribution of profits and dividend payment (a part of reinvested earnings can be transferred abroad and increase debt instruments, or disinvestments.

According to studies by Novotný and Podpiera (Novotný and Podpiera 2008, Nowotný 201), among the countries of Central and Eastern Europe, the full-fledged FDI life cycle usually covers 15 years, followed by projections toward zero (null) annual profitability.

Lundan (2006) divided factors of reinvested earnings (with regard to the inward FDI stock) into the following three categories. The first one encourages reinvestments: factors associated with a favorable investment climate have a positive effect on foreign investors' decisions to hold their earnings in a host country. For example, a high growth rate in a host country market and rising income levels in a given industry may signal new investment opportunities. The second type of factors encourages repatriation: movements in an exchange rate tend to have a deterring effect on repatriation, so that depreciation of a host currency tends to discourage reinvestment. Similarly, higher corporate tax rates in a host country are also expected to have a deterring effect on reinvested earnings and, consequently, to accelerate the repatriation of earnings. The third is the agency consideration: factors affecting a multinational corporation's (MNC) decisions regarding amounts of dividend payments may also encourage repatriation. For example, countries that have high market or political risks or are culturally or institutionally different from the home country of an MNC are likely to cause high levels of repatriation.

The above-mentioned localization conditions for reinvested earnings were analyzed empirically by several researchers. For example, Oseghale and Nwachukwu (2010) empirically proved that good governance, market size, market growth rate, exchange rate, the quality of labor, and profitability of existing operations are all positively correlated with reinvested earnings.

According to Taylor et al. (2013), if economic growth of a host country and profitability of foreign firms increase, foreign investors tend to hold reinvested

earnings in such a country. In contrast, depreciation of a host currency and increase in a host country's government consumption seem to decrease the volume of reinvestments. In addition, Salorio and Brewer (2013) pointed out that reinvested earnings are likely to depend on corporate tax rates, exchange rates, interest rates, and operational needs of MNCs in particular countries. They also noted that retained earnings are likely to be responsive to restrictions on remittance of profits to the parent company.

In the opinion of Žiković et al. (2014), equity capital FDI can have a positive effect on country's balance of payments. The cost of FDI equity in the short run can be significantly less than costs connected with loans because dividend yields can be lower than bond yields. This is correct if the yields are absolutely freely determined by the market and the loan repayment period is short. If the interest rates are preferential, i.e. lower than the market rates, which is usual in case of interstate loans, structural loans, development loans etc., or/and the repayment period is longer, the costs of loan can be lower than the cost of FDI even in the short term. An equity owner can easily recover lower dividends paid during some starting period by simply increasing dividend payouts in the following periods, reduction of capital, sale of company's assets, transfer pricing etc. In real life situations, when there is an urgent need for capital, it is far easier, faster and cheaper to get a loan than to attract equity investments. Furthermore, loans can be refinanced, reprogrammed or even a loan moratorium can be approved. Moreover, ROE reinvestment rate can be so high that an outflow of money from the host country can be lower than interests paid. This sort of ideal situation is possible when a host is a developed country, but it almost never happens in the developing markets.

In the area of the international business strategies (IBS), the following factors could affect components of FDI:

- ways used to enter foreign markets, e.g. greenfields, acquisitions, joint ventures (Gorynia 2005, Gorynia et al. 2005, Cieślik et al. 2012, Jaworek 2013);
- choice of organizational and legal form of activities, e.g.: branches, joint ventures, subsidiary and associate companies (Karaszewski 2004), and sources of financing for development of foreign companies (Perlitz 2000);
- investment profitability account used by a mother company in a home country and by daughter companies in many others host countries (Caves 1991, Różański 2010);
- acticity of ultinational corporations (Gorynia 2005, Gorynia et al. 2005, Zorska 2007).

The location determinants and motives of FDI inflows are important in many different areas but they refer only partly to the financial structure of the FDI inflows, e.g.: the eclectic paradigm of international production (Dunning 1988) and particular factors occurring on the side of a foreign investor, like: resource seeking, market seeking, efficiency seeking, and strategic asset seeking (Przybylska 1998, Mączyńska 1999, Witkowska 2000, Weresa 2002, Karaszewski 2004).

The aim of the article is to investigate the impact of financial components of FDI inflows on GDP. No comprehensive study in this regard is available.

There are extensive studies that address the total impact of FDI on GDP and the relationship between them. As far as the theoretical literature is concerned, the Keynesian school dealt with short-term growth models (Wojtyna 2000), where they referred to the effects of foreign capital within the framework of the business cycle. The neoclassical theory of growth focused on short-term effects of FDI on an economy, e.g. growth of capital resources and financial outlays. New theories of growth assume a positive impact of capital (also in the form of FDI) on production growth in both the short and long terms (Herzer et al. 2008). Followers of the real business cycle raise arguments about higher productivity of FDI in comparison to domestic capital. It is emphasized that capital spillover effects are stronger than capital diminishing returns (Liu et al. 2000, Gorynia et al. 2005, Lin and Kwan 2016, Ghebrihiwet 2017). All of these approaches treat FDI as a monolithic form of foreign capital.

As part of empirical studies of different economic growth models, FDI is usually considered as one of independent variables explaining GDP. What is examined is the combined effect of the FDI value on GDP. Some of these studies describe positive effects of FDI on GDP of a host country (Blomström 1986, De Gregorio 1992; Balasubramanyam et al. 1996, 1999, Alfaro et al. 2004, Lensink, Morrissey 2001, Wang 2002, Hansen and Rand 2006, Smarzynska-Javorcik 2004, Lensink and Morrissey 2006, Kornecki and Raghavan 2011). FDI-friendly policies are based on the belief that FDI, apart from bringing in capital and creating jobs, has several positive effects which include productivity gains, technology transfers, and introducing of new managerial skills and know-how into a domestic market.

Other studies referring to impact of foreign capital on economic growth state lack of any significant effect or a very weak influence (Carkovic and Levine 2002, 2005, Kang and Du 2005, Bacic et al. 2005, Pawłowska 2012, Gorynia et al. 2015). Still other studies present a negative influence of FDI on GDP (Saltz 1992, Mencinger 2003, Herzer et al. (2008). These findings show that FDI may harm a host economy, for instance, when foreign investors claim scarce resources or reduce investment opportunities for local investors. There is also some concern that no positive knowledge spillovers may finally occur within developing countries, because multinationals will prove able to protect their firm-specific knowledge, or because they may buy their inputs from foreign rather than local suppliers.

Researchers studying the relationships between FDI and GDP have emphasized differences in their mutual inter-relationships. In some countries, it is FDI which has a positive impact on GDP (Bende–Nabende et al. 2000, Nunnenkamp et al. 2007). In some others, it is GDP that clearly attracts FDI inflows (Chowdhury and Mavrotas 2005).

Some authors find no significant relation between FDI and GDP growth, others show either an unconditional positive link between these two variables or a relationship that is conditional on particular characteristics of a host country, such as levels of human capital or depth of the financial system. At least two reasons explain these mixed results. First, most of the authors analyzed correlations between FDI and growth using a regression analysis framework that is silent on

the causality between these two variables. Second, in the studies that do address the causality issue, the influence of other social and economic variables is seldom taken into account directly within the model and, in many cases, these are simply ignored. According to Carkovic and Levine (2002), positive effect of FDI and portfolio inflow is a result of technology transfer. They proved that FDI inflow does not affect economic growth independently. Herzer et al. (2008) argue that if FDI considerably crowds out domestic investments, then a growth decelerating impact on a recipient country is possible.

Most panel-based empirical studies bring different results. In some countries it is GDP which has an effect on FDI inflow, whereas in other countries, the reverse is true (Supriyadi and Satria 2017). What is more, FDI-GDP relationships depend on economic policies of a host country and its location. The importance of technological or human capital competence gaps is also underlined. When these gaps are too wide, they reduce and, in extreme cases, even block positive external effects (Gorynia et al. 2011).

Cause-and-effect relationships between FDI, production and total factor productivity (TFP) have been studied by Erricson and Irandoust (2001) for some OECD host countries (Denmark, Finland, Norway, and Sweden) using the VAR model. It was found that long-term correlations occur between FDI and production in Norway and Sweden. A bi-directional relationship in Granger's sense was discovered in Sweden, whereas a uni-directional one in Norway. No correlations were found in the case of Finland or Denmark. Investigations of a bi-directional relationship revealed two implications for economic policy. Firstly, that economic growth attracts inward FDI, secondly, that FDI is a key factor affecting economic growth.

Herzer et al. (2008) investigated short- and long-term causality relationships between net FDI inflows and GDP and its changes in countries of Latin America, Asia, and Africa in the period 1970–2003, using the Error Correction Model (ECM). Their studies indicate that it is not possible to define clear cut uni-directional relationships between the examined variables. Acaravci and Ozturk (2012) examined 10 European countries which underwent transformations in the years 1994–2008, using the autoregression model (ARDL).

Polish studies into relationships between GDP (or factors of production) and FDI have been carried out by few authors, e.g. Gurgul and Lach (2009), Misztal (2012), Marona and Bieniek (2013), Kosztowniak (2016). They used different methods, e.g. Vector Autoregression Model (VAR, ADRL) and Vector Error Correction Method (VECM). These studies have confirmed a mutual relationship between FDI and GDP (factors of production).

Many central bank analysts involved in forecasting the FDI components for the purposes of balance of payments estimates, e.g. for Denmark (Damgaard et al. 2010) or the Czech Republic (Novotný 2015), are interested in FDI components. Another reason for interest in FDI components is also forecasting FDI outflows in order to assess potential tax revenues of state budgets of countries in which transnational corporations have their headquarters (Knetsch and Nagengast 2016).

As already mentioned, most literature and empirical studies focus on a holistic examination of the impact of total FDI (as a monolithic variable) on GDP. There are no comprehensive studies into how individual components of the FDI affect economic growth in host countries or into their mutual relations. This study attempts to fill the gap in the current literature.

Since changes in the structure of FDI inflows/stocks involve the profitability life cycle of FDI, it is presumed that increasing or decreasing shares of the particular components in total FDI will also have a stronger or weaker impact on GDP. This assumption constitutes a basis for the formulation of the research hypothesis: As FDI inflows into Poland and enters the successive stages of its profitability life cycle, impact of equity on economic growth decreases while the importance of reinvestment of earnings rises.

2. Analytical use of the different presentations of direct investment – according to the OECD and IMF methodologies

The term 'direct investment abroad' denotes an investment made by a resident entity in one economy (direct investor) in an entity resident in another economy (direct investment enterprise), aimed at attaining a long-term profit from the capital involved.

The direct investment enterprise means an enterprise in which direct investor owns at least 10% of the voting power in the decision making body of the company. The direct investment capital comprises equity capital in the form of shares and other equity, and reinvestment of earnings and assets and liabilities vis-á-vis debt instruments.

In accordance with the standards of OECD (2008) and IMF (2009), a basic criterion used for classification of direct investment is location of its control centre domestically or abroad. This means that the directional principle presentation is applied to the calculation of FDI components, for both:

- transactions (net inflows and net outflows[2]),
- stocks (net inward and net outward),
- and net incomes.

As a consequence, from the perspective of an economy in question, direct investment is divided into investment controlled by non-residents and investment controlled by residents. The directional principle is a presentation of direct investment data organized according to the direction of a direct investment relationship. This allows for the distinction between foreign direct investment in Poland and Polish direct investment abroad.

[2] It should be noted that net flows of capital are calculated in the form of transactions, stocks and incomes in accordance with direction of direct investors' activities. Changes of FDI flows are not expressed gross but as net balance of the accounts. This is clearly stated in National Bank of Poland (NBP) reports and in some other publications (e.g. Novotný (2015), Kosztowniak (2018).

This method (directional principle) of presentation of data on direct investment differs from that adopted in the balance of payments (BP) and international investment position (IIP), where direct investment is presented with a breakdown into assets and liabilities.

The distinction between these two methods of calculating direct investment is important for understanding the impact of FDI components on economic growth in a host country. Data on both the asset and liability presentation and the directional principle presentation are useful for different kinds of analysis.

Data on the asset and liability basis are consistent with monetary, financial, and other balance sheet data, and thus facilitate comparison between the data sets. These data are needed on an immediate counterparty basis to adequately monitor flows and positions.

Table 1

Components of direct investment (asset/liability presentation)

Assets	Liabilities
Of direct investors in direct investment enterprises	Of direct investment enterprises to direct investors
A1. Equity	L1. Equity
A1.1. Equity transactions	L1.1. Equity transactions
A1.2. Reinvestment of earnings	L1.2. Reinvestment of earnings
A2. Debt instruments	L2. Debt instruments
Of direct investment enterprises in direct investors – reverse investment	Of direct investment enterprises to direct investors – reverse investment
A3. Equity	L3. Equity
A4. Debt instruments	L4. Debt instruments
Of resident fellow enterprises in fellow enterprises abroad	Of resident fellow enterprises to fellow enterprises abroad
A5. Equity	L5. Equity
A5.1. Equity (if ultimate controlling parent is resident[a])	L5.1. Equity (if ultimate controlling parent is nonresident[b])
A5.2. Equity (if ultimate controlling parent is nonresident[b])	L5.2. Equity (if ultimate controlling parent is resident[a])
A6. Debt instruments	L6. Debt instruments
A6.1. Debt instruments (if ultimate controlling parent is resident[a])	L6.1. Debt instruments (if ultimate controlling parent is nonresident[b])
A6.2. Debt instruments (if ultimate controlling parent is non-resident[b])	L6.2. Debt instruments (if ultimate controlling parent is resident[a])

[a] Resident in the compiling economy. [b] Not resident in the compiling economy.
Source: own compilation based on IMF (IMF 2009, p. 109).

Data based on the directional principle assist in understanding motivation for direct investment and take account of control and influence. In the directional presentation, reverse investment can be seen as equivalent to withdrawal of an investment. The directional principle may be particularly useful for an economy with high values of pass-through funds or round tripping, because large investment flows into and out of an economy may not be of primary interest to analysts of direct investment (IMF 2009, p. 108).

According to the indications in Table 1, direct investment is calculated for the purposes of:

1. International investment positions and balance of payments (net transactions)
   Asset/liabilities presentation

   Direct investment assets:
   Equity: $A1 + A3 + A5$
   Debt instruments: $A2 + A4 + A6$

   Direct investment liabilities:
   Equity: $L1 + L3 + L5$
   Debt instruments: $L2 + L4 + L6$

2. FDI flows (transactions, stocks and incomes)
   Directional principle presentation

   Direct investment abroad (outward direct investment):
   Equity: $A1 - L3 + A5.1 - L5.2$
   Debt instruments: $A2 - L4 + A6.1 - L6.$

   Direct investment in the reporting economy (inward direct investment):
   Equity: $L1 - A3 + L5.1 - A5.2$
   Debt instruments: $L2 - A4 + L6.1 - A6.2$

Detailed structure of direct investment presented in a balance of payment (liabilities) includes three components: equity, reinvestment of earnings, and debt instruments.

Equity, other than reinvestment of earnings comprises: equity in branches, all shares in subsidiaries and associates (except non-participating, preferred shares that are treated as debt securities and included under direct investment, debt instruments) and other contributions of an equity nature.

Reinvestment of earnings denotes the part of profits accruing to a direct investor which remains in a direct investment enterprise and which is allocated to its further development. Reinvestment of earnings encompasses direct investors' claim (in proportion to equity held) on the retained earnings of direct investment enterprises. Moreover, this reinvestment of earnings represents financial account transactions that contribute to the equity position of a direct investor in a direct investment enterprise.

Debt instruments mean all forms of investing other than acquisition of shares or equity, or reinvestment of earnings associated with such shares or equities. Debt instruments (DI) include, among others: credits (trade credit, receivables

and payables) and loans, debt securities and other unsettled payments between entities in direct investment relationships (OECD 2008, NBP 2017).

Table 1, when specifying reverse investment, indicates that a direct investment enterprise may acquire an equity or other claim on its own account or on behalf of an indirect investor. These transactions may occur as a way of withdrawing investment, or as a way of organizing finance within a transnational group. For example, for an enterprise that borrows on behalf of its parent company and in cases in which treasury functions are concentrated in a subsidiary, the subsidiary may lend money to its direct investor.

Reverse investment arises when a direct investment enterprise lends funds to or acquires equity in its immediate or indirect direct investor, provided it does not own equity comprising 10% or more of the voting power in that direct investor. In contrast, if two enterprises each have 10% or more of the voting power in the other, there is not reverse investment, rather, there are two mutual direct investment relationships. That is, each enterprise is both a direct investor and direct investment enterprise of the other (IMF 2009, p. 107).

NBP calculates FDI inflows (transactions, stocks and incomes), balance of payments (BP) and International Investment Position (IIP) according to the new standards since 2013.

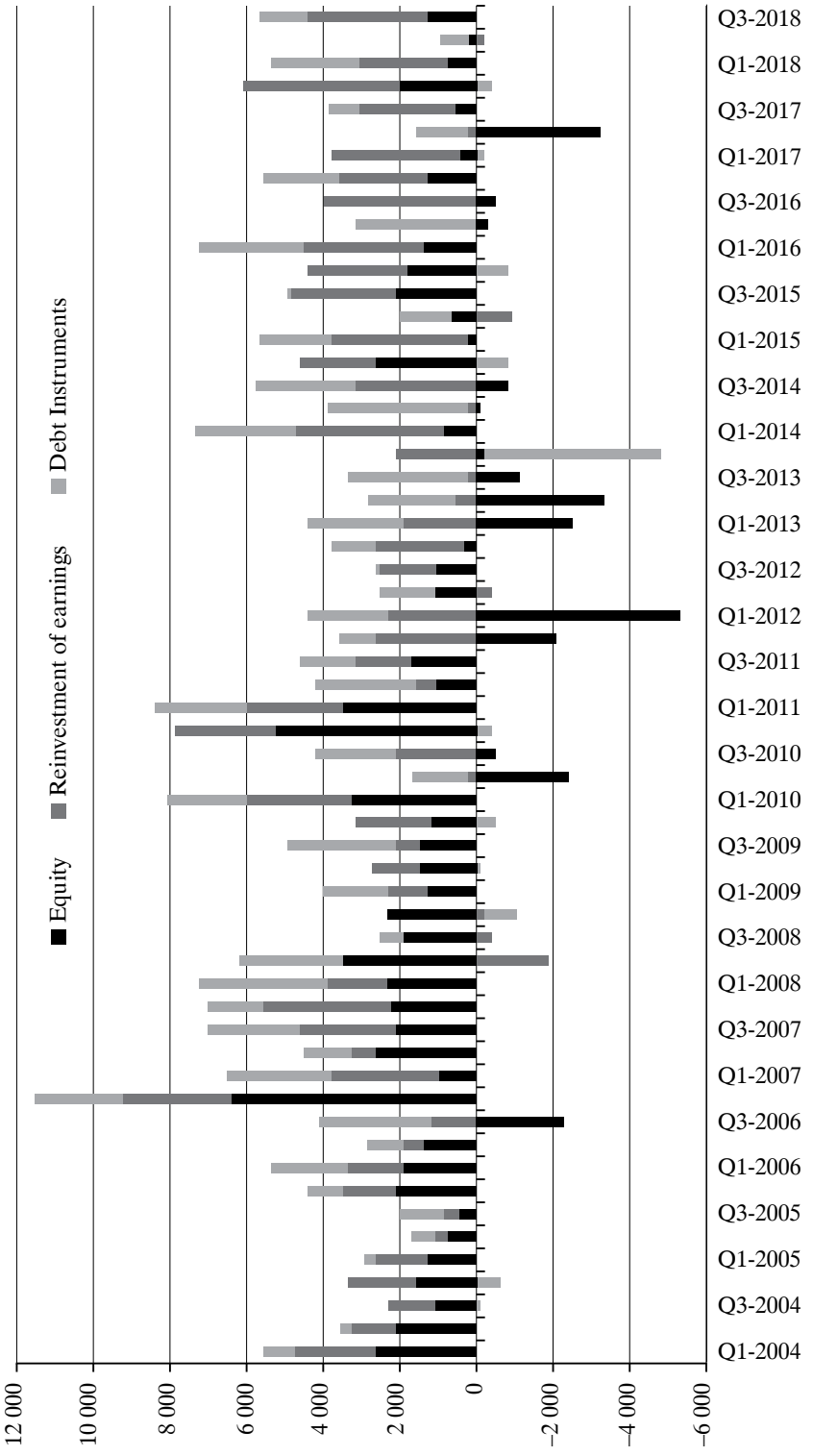
3. Data and research procedure

The research is based on statistics from the NBP (FDI components) and OECD Internet databases (GDP) for the period 2004:Q1–2018:Q3 (59 quarters). NBP compiles data on direct investment in compliance with the OECD definition (OECD 2008, IMF 2009). FDI components come from the balance of payments (BP) data calculated according to assets and liabilities presentation. The analysis uses FDI data from the financial account of BP (liabilities, net transactions) because the analysis refers to the impact of FDI financial instruments on GDP changes.

Such data was used as it is published on a quarterly basis. Quarterly data is important from the point of view of econometric modelling. In contrast, the data on the FDI inflows (according to directional principle) are published only on an annual basis; a short series of annual data makes modelling difficult.

In the last decade, the annual FDI inflows to Poland have usually fluctuated in the range of USD 10–15 million. In 2004, the annual FDI inflow was USD 13.9 million, and it amounted to USD 10.7 million in 2017 (NBP 2018). During the analyzed period (divided into quarters), FDI inflows showed significant fluctuations. These fluctuations concerned both the total inflow value as well as its structure (components), assuming generally positive but occasionally also negative values (e.g. 2010:Q2, 2012:Q1, 2017:Q2). The average quarterly value of FDI inflows amounted to USD 3739 millions, including USD 885 millions of

Figure 2
Structure of FDI inflows to Poland in 2004–2018 (USD million)



Source: own elaboration based on the NBP data (NBP 2019).

equity, USD 1615 millions of reinvestment of earnings, and USD 1239 millions of debt instruments (Figure 2).

Throughout the period 2004:Q1–2018:Q3, the average share of equity in the FDI inflows prevailed (54.3%) over reinvestment of earnings (27.4%) and debt instruments (18.3%). In the period 2004:Q1–2013:Q4, the average equity share was 66.6%, it was 20.3% for the reinvestment of earnings and 13.1% for DI. However, in the last 5 years (2014:Q1–2018:Q3), the structure of the FDI inflow changed fundamentally. In the years 2014–2018, the average share of equity decreased to 28.4%, the share of earnings reinvestment increased to 42.4%, and the share of debt instruments rose to 29.2%.

The interest rates maintained by NBP at low levels since 2015 affect the structure of FDI inflows and are conducive to:

- a growing rate of return on equity (ROE) at a low cost of raising capital and good financial performance, e.g. in the banking sector and the real estate (development) market – this situation encourages foreign direct investors to increase their rate of retention of profits (reinvestment of earnings) in the host country (in Poland) and attracts new FDI inflows in the form of reinvestment of earnings, e.g. from daughter companies abroad;
- increasing yield of bonds (demand growth for bonds) and, as a consequence, growth of debt instruments held by foreign direct investors.

In order to analyse the relationship between changes in GDP values and financial instruments (components) of FDI in Poland in the period 2004:Q1–2018:Q3, a final formula for the GDP function was developed:

$$GDP_t = \propto_0 + \propto_1 EQ_t + \propto_2 RofE_t + \propto_3 DI_t + \xi_i. \quad (1)$$

The model consists of the dependent variable (GDP) and three independent variables, where:

GDP – gross domestic product (USD million),
EQ – equity other than reinvestment of earnings (USD million),
RofE – reinvestment of earnings (USD million),
DI – debt instruments (USD million),
ξ_i – random component,
t – period.

In this study, research methods are used known from the literature on international economics and international finance and econometric methods like the VECM model (*Vector Error Correction Method*) are employed, including the impulse response functions and forecast error variance decomposition analysis.

All variables expressed in terms of value are included in the form of natural logarithms from quarterly data and smoothed by simple moving verages. Preliminary analysis of time series graphs for the period 2004:Q1–2018:Q3 leads to the conclusion that, in the case of GDP changes, we deal with a pronounced non-stationary process. On the other hand, in the case of the financial instruments of FDI we can speak of a stationary process.

Table 2

Stationarity test results on the basis of the augmented Dickey-Fuller (ADF) test

Specification		s_GDP	s_EQ	s_RofE	s_DI
Null hypothesis: unit root appears		$a = 1$; process I (1)	$a = 1$; process I (1)	$a = 1$; process I (1)	a = 1; process I (1)
with absolute term (const)	test statistic: τ_ct (1)	–2.61942	–6.14435	–3.88987	–5.13795
	asymptotic p-value	0.08896	5.34300	0.00212	1.05700

Source: own calculations.

ADF tests were carried out for the first difference variables (Table 2).

A comparison between test τ statistics and critical values of these statistics shows that in the case of basic variables, the series are non-cointegrated and variables are non-stationary because the test probabilities are above 0.05. On the other hand, in the case of first differences, variables are mostly stationary and series are co-integrated to the order of 1. An ultimate confirmation of stationarity requires an additional test, e.g. KPSS (Table 3).

The lag order for the VAR/VECM model was determined on the basis of estimation of the following information criteria: the Aikake information criterion (AIC), Schwartz-Bayesian information criterion (BIC), and Hannan-Quinn information criterion (HQC). According to these criteria, the best, that is, minimal values of the respective information criteria are: AIC = 7, BIC = 1 and HQC = 2, with the maximum lag order 8. Ultimately, the lag order 4 was accepted.

In order to analyze stability of the VAR model (Łupiński 2013), a unit root test was applied. The test indicates that in the analyzed model equation roots in

Table 3

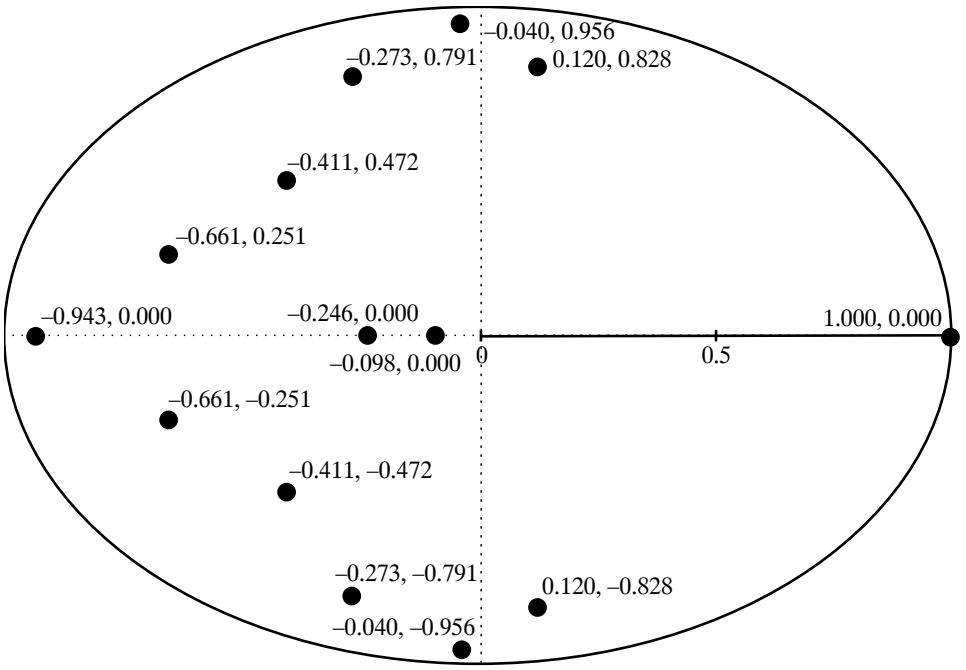
KPSS stationarity test results for basic variables and their first differences

Specification		GDP	EQ	RofE	DI	d_GDP	d_EQ	d_RofE	d_DI
without a trend	test statistic	1.54916	0.52187	0.53652	0.11972	0.20618	0.04955	0.09807	0.05193
	critical value of the test	0.351 (10%); 0.462 (5%); 0.727 (1%)				0.351 (10%); 0.462 (5%); 0.727 (1%)			
with a trend	test statistic	0.15239	0.10175	0.06369	0.10614	0.13315	0.03841	0.06559	0.04981
	critical value of the test	0.121 (10%); 0.149 (5%); 0.214 (1%)				0.121 (10%); 0.149 (5%); 0.214 (1%)			

Source: own calculations.

Figure 3

VAR inverse roots in relation to unit circle



Source: own elaboration.

respect of the module are lower than one, which means that the model is stable and may be used for further analyses (Figure 3).

Co-integration was verified using two tests: the Engle-Granger and Johansen tests (Johansen 1991, 1992, 1995). Their results comprehensively confirmed co-integration for lag 1. This is proved by the values of the test statistic τ_e which are lower than critical values $\tau_{critical}$, levels of asymptotic p-values and integrated processes $a = 1$ and I (1), at the significance level $\alpha = 0.05$ (Table 4).

Table 4

Results of the Engle-Granger co-integration test

Specification	d_GDP	d_EQ	d_RofE	d_DI
Unit root appears	$a = 1$; process I (1)	$a = 1$; process I (1)	$a = 1$; process I (1)	$a = 1$; process I (1)
ADF test with test with constant, test statistic τ_c (1), τ_e (asymptotic p-value), lag order = 4	–2.61942 (0.08896)	–6.14435 (5.34300)	–3.88987 (0.00212)	–5.13795 (1.05700)

Source: own calculations.

Table 5

Johansen test

Rank	Eigenvalue	Trace test (*p*-value)	Lmax test (*p*-value)	
0	0.56956	105.5500 (0.0000)	45.5200 (0.0000)	
1	0.48210	60.0350 (0.0000)	35.5300 (0.0001)	
2	0.29803	24.5040 (0.0013)	19.1080 (0.0066)	
3	0.09509	5.3959 (0.0202)	5.39590 (0.0202)	
Eigenvalue	0.56956	0.48210	0.29803	0.09509

Source: own calculations.

Results of the Johansen test (including trace and eigenvalue) show that at the significance level of 0.05, co-integration to the order of one occurs (Table 5).

Due to the occurrence of unit element in all the time series and the existence of cointegration between the model variables, it was possible to extend and transform the model into vector error correction models.

Empirical model

1.2. VECM model

Co-integration was verified by means of the Engle-Granger and Johansen tests which confirmed the occurrence of co-integration and thus justified the use of the VECM model for the lag order 4 and co-integration of order 1.

In accordance with the Granger representation theorem, if variables y_t and x_t are integrated to the order of I (1) and are co-integrated, the relationship between them can be represented as a vector error correction model (VECM) (Piłatowska 2003).

The general form of the VECM can be written as:

$$\Delta Y_t = \Gamma_1 \Delta Y_{t-1} + \Gamma_2 \Delta Y_{t-2} + ... + \Gamma_{k-1} \Delta Y_{t-k+1} + \pi Y_{t-k} + \varepsilon_t =$$

$$= \sum_{i=1}^{k-1} \Gamma_i \Delta Y_{t-i} + \pi Y_{t-k} + \varepsilon_t, \qquad (2)$$

where:

$$\Gamma_i = \sum_{j=1}^{i} Aj - \mathbf{I}, \quad i = 1, 2, ..., k-1, \quad \Gamma_k = \pi = -\pi(1) = -\left(\mathbf{I} - \sum_{i=1}^{k} Ai\right)$$

and **I** is a unit matrix.

Analysis of the VECM model allows us to draw the following conclusion: levels of vector $\propto$ parameters indicating the rate of GDP adjustments in successive VECM model equations show that the highest rate of these adjustments was noted for own changes in GDP.

Based on the GDP equation (equation 1) and estimated coefficients (Table 6), it can be concluded that changes in DI (1.24204) and RoE (1.04362) were the factors that determined GDP development to the greatest extent. The results of estimating the model parameters indicate that the increases of DI and RoE by 1 p.p. led to GDP growth by over 1.1–1.2 p.p. Next, the EQ (equation 2) changes were mostly determined by the formation of DI. In the case of DI increase by 1 p.p. led to a fall in the EQ by 1.1 p.p. The changes of RoE (equation 3) were determined to the greatest extent by their own earlier shifts. In turn, DI (equation 4) depended mainly on RoE; an increase in RoE by 1 p.p. led to a decline in DI by 1.4 p.p.

Some other conclusions can be drawn from the evaluation of the vector correction model component (EC1) representing the mechanism of short-term adjustments which serves attainment of the long-tem model balance. Evaluation of the EC1 indicates that the strongest correction of the deviation from long-term equilibrium occurs in the case of the DI equation. Here, around 1.3% of the imbalance from the long-term growth path is corrected by a short-term adjustment process. Weaker deviation adjustments occur for GDP (0.99%), EQ (0.59%) and for RoE (1.11%). The values of the coefficient of determination reveal adjustment matching of the VECM model equations to empirical data, i.e. for GDP (67.43%), EQ (67.74%), RoE (87.96%), and DI (91.24%) (Table 6).

Table 6

VECM system (lag order = 4, rank = 1)

Equation 1: d_d_GDP					
Variable	Coefficient	Std. error	*t*-ratio	*p*-value	α
Const	614.793000	935.680000	0.657100	0.514900	
d_d_GDP_1	−0.773595	0.162031	−4.774000	< 0.000100	***
d_d_GDP_2	−0.683183	0.168575	−4.053000	0.000200	***
d_d_GDP_3	−0.057961	0.160984	−0.360000	0.720700	
d_d_EQ_1	0.408886	0.650883	0.628200	0.533400	
d_d_EQ_2	−0.303003	0.578012	−0.524200	0.603000	
d_d_EQ_3	0.228326	0.460367	0.496000	0.622600	
d_d_RoE_1	−0.925603	1.447710	−0.639400	0.526200	
d_d_RoE_2	0.576776	1.231570	0.468300	0.642100	
d_d_RoE_3	1.043620	0.725262	1.439000	0.157900	
d_d_DI_1	1.242040	1.758910	0.706100	0.484200	
d_d_DI_2	1.158490	1.126900	1.028000	0.310100	
d_d_DI_3	1.044750	0.571314	1.829000	0.074900	*
EC1	−0.009913	0.010170	−0.974800	0.335500	
R^2 = 0.674358			DW = 1.954804		

Table 6 cont.

Equation 2: d_d_EQ					
Variable	Coefficient	Std. error	*t*-ratio	*p*-value	α
Const	−42.309800	386.824000	−0.109400	0.913500	
d_d_GDP_1	0.076226	0.066986	1.138000	0.261900	
d_d_GDP_2	0.004421	0.069691	0.063440	0.949700	
d_d_GDP_3	−0.027092	0.066553	−0.407100	0.686100	
d_d_EQ_1	−0.679867	0.269085	−2.527000	0.015600	**
d_d_EQ_2	−0.597499	0.238959	−2.500000	0.016600	**
d_d_EQ_3	−0.207681	0.190323	−1.091000	0.281700	
d_d_RoE_1	0.780063	0.598507	1.303000	0.199900	
d_d_RoE_2	0.324275	0.509151	0.636900	0.527800	
d_d_RoE_3	0.003143	0.299834	0.010480	0.991700	
d_d_DI_1	−1.001930	0.727160	−1.378000	0.175900	
d_d_DI_2	−0.562692	0.465880	−1.208000	0.234200	
d_d_DI_3	−0.104696	0.236190	−0.443300	0.660000	
EC1	0.005889	0.004204	1.401000	0.169000	
R^2 = 0.677426			DW = 2.092779		

Equation 3: d_d_RoE					
Variable	Coefficient	Std. error	*t*-ratio	*p*-value	α
Const	11.699900	177.305000	0.065990	0.947700	
d_d_GDP_1	0.025751	0.030703	0.838700	0.406600	
d_d_GDP_2	−0.015312	0.031943	−0.479300	0.634300	
d_d_GDP_3	0.007236	0.030505	0.237200	0.813700	
d_d_EQ_1	0.088652	0.123338	0.718800	0.476500	
d_d_EQ_2	−0.056663	0.109529	−0.517300	0.607800	
d_d_EQ_3	−0.034934	0.087236	−0.400500	0.691000	
d_d_RoE_1	−0.822841	0.274332	−2.999000	0.004600	***
d_d_RoE_2	−0.935478	0.233375	−4.008000	0.000300	***
d_d_RoE_3	−0.807743	0.137432	−5.877000	< 0.000100	***
d_d_DI_1	−0.251463	0.333302	−0.754500	0.455000	
d_d_DI_2	−0.127185	0.213541	−0.595600	0.554800	
d_d_DI_3	−0.259626	0.108260	−2.398000	0.021200	**
EC1	0.001117	0.001927	0.579900	0.565300	
R^2 = 0.879644			DW = 2.218278		

Table 6 cont.

Equation 4: d_d_DI					
Variable	Coefficient	Std. error	*t*-ratio	*p*-value	α
Const	187.304000	184.869000	1.013000	0.317100	
d_d_GDP_1	−0.048289	0.032014	−1.508000	0.139300	
d_d_GDP_2	−0.031077	0.033307	−0.933000	0.356400	
d_d_GDP_3	−0.047212	0.031807	−1.484000	0.145600	
d_d_EQ_1	−0.865479	0.128600	−6.730000	< 0.000100	***
d_d_EQ_2	−0.566009	0.114202	−4.956000	< 0.000100	***
d_d_EQ_3	−0.273878	0.090958	−3.011000	0.004500	***
d_d_RoE_1	−1.451610	0.286035	−5.075000	< 0.000100	***
d_d_RoE_2	−0.624967	0.243331	−2.568000	0.014100	**
d_d_RoE_3	−0.212140	0.143295	−1.480000	0.146600	
d_d_DI_1	1.053710	0.347521	3.032000	0.004200	***
d_d_DI_2	0.481193	0.222651	2.161000	0.036700	**
d_d_DI_3	0.086585	0.112879	0.767100	0.447500	
EC1	−0.013643	0.002009	−6.790000	< 0.000100	***
R^2 = 0.912453			DW = 2.116974		

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.
Source: own calculations.

In order to verify the correctness of the VECM model results, two tests were carried out verifying occurrence of autocorrelation: autocorrelation Ljung-Box Q' test (lag order = 4) and ARCH test (lag order = 4).

Ljung-Box tests (LMF, LM, Q) were conducted to verify autocorrelation for the lag order 4. The verifying statistic using the autocorrelation coefficient function (ACF) in the form Q' and empirical *p*-value levels higher than the nominal $\propto = 0.05$ let us conclude that there is no autocorrelation in the residual process (Kufel 2011).

The ARCH test results indicate that in the examined model of the residual-based process (four variables), the ARCH effect was not observed because LM test statistics are lower than the levels of χ^2. This means that there is no autoregressive changeability of the conditional variance and there is no need to estimate model parameters by means of weighted least squares method. Thus, the results of both the tests confirm credibility of the VECM model and allow for conclusions drawn on their basis.

4.2. Impulse response functions

Analysis of GDP responses to shocks derived from FDI components reveal that GDP responses are the strongest to impulses from equity (EQ). The impact of

the remaining components, i.e. reinvestment of earnings and debt instruments, affects GDP changes comparably less. The strongest GDP responses occur in the periods (quarters) 1–2. Periods 3 and 4 are characterized by a falling tendency after which fluctuations in GDP responses stabilize slowly, usually starting from period 5 or 6. What is more, GDP responses to their own errors in forecasts indicate fading/weakening tendencies in the periods 1–3, to stabilize in the successive periods, most clearly from period 20 onwards. However, presentation of GDP responses to impulses shows distinctly that GDP responds most strongly to its own standard deviations.

In the case of impulses derived from FDI components, the GDP response is clearly weaker. Nevertheless, it must be noted that it is the strongest to positive impulses from equity and reinvestment of earnings and negative stimuli from debt instruments (the weakest response) (Figure 4).

While the FDI responses to impulses of GDP remain positive in the case of equity and reinvestment of earnings, they become negative for debt instruments. Debt instrument responses reach the maximum positive value in period 3. GDP responses like reinvestment of earnings, reaches its maximum in the period 4–5. Responses of all the examined FDI components to GDP-derived impulses show weakening tendencies in the initial periods (1–2) (Figure 5).

Among FDI components, it is equity and debt instruments that indicate the strongest positive reaction in the successive periods 1–20, which stabilizes after period 3. This means that GDP changes in a host economy have maximum effect on direct foreign investors' decisions concerning equity and debt instruments.

4.3. Decomposition of variance

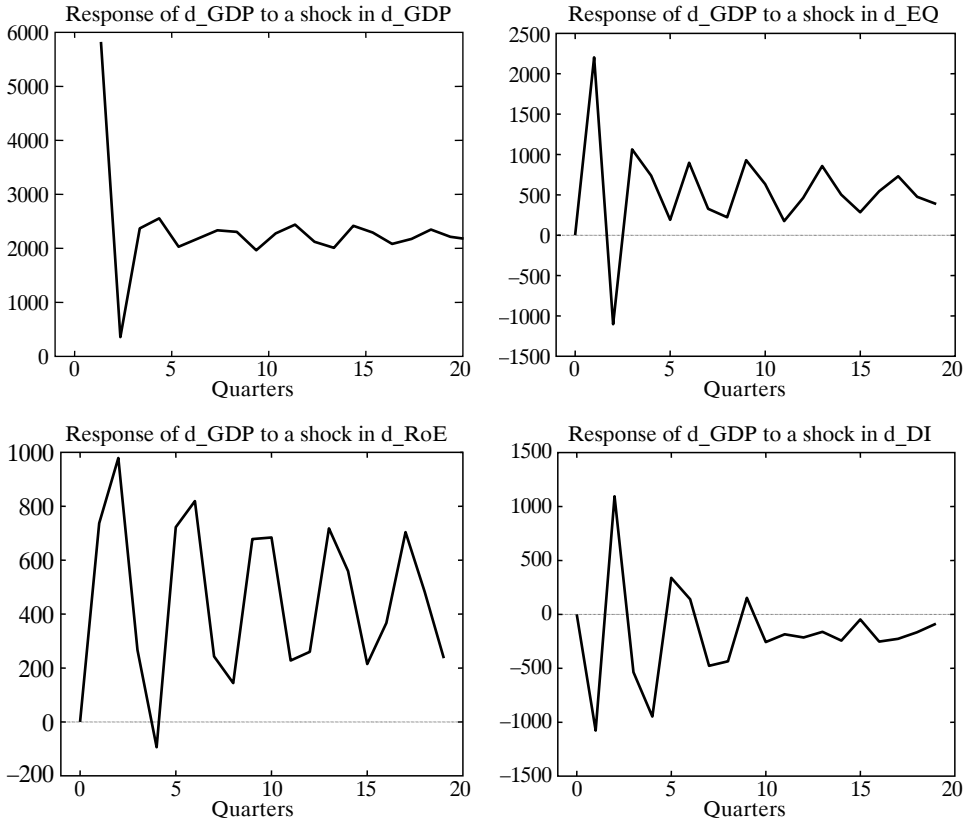
GDP and all FDI components were also analyzed by means of variance decomposition in the forecast horizon of 20 quarters (Table 7).

Results of GDP decomposition indicate that in the period 1 these changes are fully accounted for with their own forecast errors. In the period 2, their own changes lose significance (84.0%) and such FDI components as reinvestment of earnings (1.4%), equity (11.8%) and debt instruments (2.8%) grow in significance. In the following periods, GDP's own changes stabilize at the level of 84.7%, impact of reinvestment of earnings falls to 3.8% and that of debt instruments rises to 3.0%, whereas equity loses in significance (falling to 8.4%). Thus, we can conclude that FDI significance in forecasting the GDP changes amounts jointly to ca. 15.2% in the 20^{th} quarter, that is, in 5 years.

As far as equity is concerned, the degree of its explanation in the periods 1 and 20 of the forecast depends first of all on own forecast errors (86.7% and 75.2%, respectively). Results for earnings reinvestment indicate that, in the period 1, 99.2% of their changes are accounted for by own forecast errors, 0.8% by GDP, 0.7% by equity, and 0.0% by DI. In the period 20 of the forecast, the degree of explanation of reinvestment is distributed between: own changes (63.4%) and

Figure 4

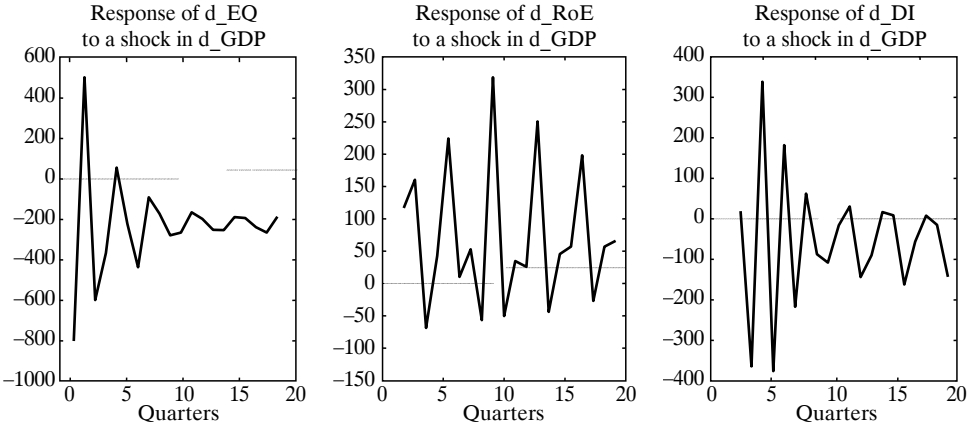
Response of GDP to a standard shock in GDP, EQ, RoE and DI



Source: own elaboration.

Figure 5

Response of FDI components to a standard shock in GDP



Source: own elaboration.

Table 7

Decomposition of variance for GDP, EQ, RoE and DI

Decomposition of variance for d_GDP				
Period	d_GDP	d_EQ	d_RoE	d_DI
1	100.000000	0.000000	0.000000	0.000000
2	83.982300	11.850600	1.328400	2.838700
3	80.128800	12.140400	3.006600	4.724200
4	80.333800	12.393900	2.710400	4.561900
5	79.788100	12.155300	2.485300	5.571300
6	80.417300	11.243800	3.043500	5.295400
7	80.253600	11.266600	3.645300	4.834500
8	81.162200	10.604200	3.461000	4.772500
9	81.771100	10.148800	3.317800	4.762300
10	81.613200	10.358600	3.579000	4.449300
11	81.957200	10.037800	3.799600	4.205400
12	82.652900	9.617700	3.679400	4.050000
13	83.055700	9.423800	3.592400	3.928100
14	83.004500	9.473300	3.814800	3.707400
15	83.320000	9.218800	3.885700	3.575400
16	83.813500	8.953400	3.783600	3.449600
17	84.086100	8.819600	3.734500	3.359800
18	84.070600	8.780300	3.913700	3.235400
19	84.334900	8.604900	3.927900	3.132200
20	84.708700	8.421300	3.836000	3.033900

Decomposition of variance for d_EQ				
Period	d_GDP	d_EQ	d_RoE	d_DI
1	13.261100	86.738900	0.000000	0.000000
2	16.997800	80.835300	0.280200	1.886800
3	21.524200	75.311700	1.441200	1.722900
4	21.013100	74.433400	1.267900	3.285500
5	19.015200	75.582400	1.741000	3.661400
6	18.514300	75.070300	2.382300	4.033000
7	19.771100	72.212900	3.507500	4.508500
8	18.580100	73.623400	3.416700	4.379700
9	17.814600	74.633500	3.409300	4.142600
10	17.890300	73.865100	3.813100	4.431500
11	17.809800	73.331600	4.410000	4.448700
12	17.196000	74.236600	4.274400	4.293000
13	16.861300	74.753600	4.175600	4.209500
14	16.824300	74.446300	4.429800	4.299600
15	16.784600	74.314400	4.708000	4.193000
16	16.385800	74.907600	4.554500	4.152100
17	16.107900	75.342800	4.412000	4.137300
18	16.086800	75.173300	4.589600	4.150300
19	16.126700	75.111000	4.697600	4.064600
20	15.781500	75.618100	4.545900	4.054500

Decomposition of variance for d_RoE				
Period	d_GDP	d_EQ	d_RoE	d_DI
1	0.799000	0.006700	99.194400	0.000000
2	2.485300	0.090500	97.423300	0.000900
3	3.039700	4.464100	91.458300	1.037800
4	2.763500	4.712300	87.099300	5.424900
5	3.516900	7.115200	79.475400	9.892600
6	3.272100	8.781200	74.151400	13.795300
7	3.139600	9.719200	70.682000	16.459100
8	3.178100	9.076300	69.313000	18.432600
9	5.136000	8.733600	68.298000	17.832400
10	5.085600	10.316800	65.615400	18.982200
11	4.976300	10.607600	64.166600	20.249600
12	4.745200	10.187900	64.251100	20.815900
13	5.451600	9.639000	65.063400	19.846000
14	5.441700	10.891800	63.701700	19.964800
15	5.395000	10.983700	63.143900	20.477400
16	5.208700	10.626000	63.638200	20.527200
17	5.494400	10.106200	64.432300	19.967200
18	5.474200	10.956400	63.619600	19.949700
19	5.453300	10.968600	63.438000	20.140100
20	5.306200	10.650900	64.124900	19.917900

Decomposition of variance for d_DI				
Period	d_GDP	d_EQ	d_RoE	d_DI
1	0.026400	3.344900	2.792100	93.836600
2	4.090000	1.786400	18.526200	75.596900
3	6.193100	9.058600	16.594500	68.153900
4	9.067000	8.681200	17.414200	64.837600
5	9.344000	8.246500	16.542600	65.866800
6	9.594800	8.338000	20.649700	61.417500
7	9.149400	10.167500	22.319500	58.363500
8	9.154000	10.015700	23.198100	57.632100
9	9.284600	10.189800	22.969700	57.555900
10	8.832800	11.002400	25.384400	54.780400
11	8.577300	11.624400	26.607900	53.190400
12	8.849900	11.515300	26.879100	52.755700
13	8.901600	11.925400	26.641700	52.531300
14	8.530400	13.004400	28.148800	50.316400
15	8.376800	13.220800	28.771800	49.630600
16	8.741600	13.136900	28.792900	49.328600
17	8.700600	13.718100	28.634900	48.946400
18	8.416700	14.577500	29.661500	47.344400
19	8.317200	14.709000	29.929700	47.044100
20	8.593900	14.657900	29.883800	46.864400

Source: own calculations.

changes in debt instruments (20.1%), as well as equity (11.0%) and GDP (5.4%). In the case of debt instruments, own forecast errors (93.8% and 46.9%) and reinvestment of earnings (2.8% and 29.9%), are of key significance for their explanation.

A detailed analysis of the decomposition of the analyzed variables from the 1st to the 20th quarter of the forecast (Table 7) indicates that the strongest impact (apart from their own forecast errors) was produced by:

- GDP – 12.4% EQ (Q4), 3.9% RoE (Q19), and 4.6% DI (Q5),
- EQ – 21.5% GDP (Q3), 4.7% RoE (Q15), and 4.5% DI (Q7),
- RoE – 5.5% GDP (Q17), 10.9% EQ (Q19), and 20.5% DI (Q16),
- DI – 9.3% GDP (Q9), 14.7% EQ (Q19), and 29.9% DI (Q20).

The results obtained for GDP decomposition of variance are convergent, for example, with the results achieved by Kosztowniak (2016) in the GDP decomposition with participation of FDI (jointly for all components) in her studies for Poland in the years 1992–2012. Her investigations indicated that FDI accounted for 1.70% of GDP changes in the period 2 and for 5.23% in the period 10 of the forecast. This confirms my results and persistently growing degrees of explanation for GDP changes with FDI components in the consecutive years of the study, i.e. in the period 2004:Q1–2018:Q3.

The results for Poland are in line with the findings of Polat (2017). The author examined relationships between reinvestment of earnings (i.e. one FDI component) and selected macroeconomic indicators for 80 countries in the period 2006–2012. Her studies found strong evidence that reinvested earnings are positively correlated with political risk ratings (confidence level), GDP, GDP growth rate and consumer confidence level in each host country, and negatively associated with repatriation and payment delay risk ratings.

4.4. Summary of the empirical results

The empirical research dealt with inter-relationships between GDP and FDI values, split into different financial instruments, i.e. equity, reinvestment of earnings, and debt instruments in Poland in the periods 2004:Q1–2018:Q3. Because of cointegration among the variables, these inter-relationships were examined with the use of the VECM and VAR models, supplemented with analysis of responses to impulses and decomposition of variance.

Analysis of GDP responses to impulses from its own forecast errors and FDI financial instruments indicates that GDP responds most strongly to its own standard error. In the case of impulses derived from FDI, the GDP response is definitely weaker. However, it was noted that GDP reaction is strongest to positive impulses from equity; it is weaker in the case of impulses from reinvestment of earnings, and becomes weakest to negative impulses from debt instruments.

On the other hand, responses of FDI components to impulses derived from GDP reveal weakening tendencies in the periods 1 and 2. However, they keep at

a positive level in the case of GDP and equity, but fall to negative levels for debt instruments. In the successive periods, the FDI financial instrument responses to shocks coming from GDP vary. Debt instrument responses reach the maximum positive level in the period 3. The responses of equity and reinvestment of earnings reach their maximum in the periods 3–4.

GDP decomposition analysis indicates that the current GDP changes are explained to the largest extent by own forecast errors. From the periods 1–2 onwards, this effect becomes smaller and significance of FDI financial instruments is revealed. During 20 quarters (5 years), the highest degree of GDP explanation among the FDI instruments is attributed to equity, whereas reinvestment of earnings and debt instruments play much lesser roles in this respect. All in all, the degree of explanation of GDP by the above mentioned FDI financial instruments amounts to ca. 15.2%.

Conclusion

The relationship between FDI components and GDP has been investigated in this paper for Poland during almost 15 years (2004:Q1–2018:Q3). The results of the study confirmed the hypothesis that as FDI inflows enter the successive stages of its profitability life cycle – impact of equity on economic growth decreases, while the importance of reinvestment of earnings rises. Moreover, according to estimates, GDP responses are the strongest to impulses from equity followed by reinvestment of earnings. Similarly, among the FDI components the equity responses to a standard shock in GDP are strongest, followed by reinvestment of earnings responses.

Reinvestment of earnings in a host country implies a perception of higher reinvestment earnings, being a very good signal of long-run confidence on the part of existing investors, which can attract new foreign investments in this market, e.g. in the form of greenfield investments. Moreover, economic growth has a strong impact on equity, which is the foundation for establishing and operation of enterprises with foreign capital participation. There is a bilateral relationship between GDP and FDI financial instruments.

These findings seem plausible and important because their implications can find practical applications and can become the basis of recommendations for economic policy. One of the key tasks is to create favorable conditions for investment that would encourage foreign investors to make reinvestment of earnings decisions within their long-term strategies. The existing and future foreign investment inflows may to support economic growth in Poland more effectively.

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IMPACT OF THE FINANCIAL STRUCTURE OF FDI INFLOWS ON ECONOMIC GROWTH IN POLAND

Abstract

The aim of this paper is to analyse the impact of financial components of foreign direct investment (FDI) inflows on economic growth in Poland in the years 2004–2018, with special emphasis on the role of reinvestment of earnings. The following hypothesis has been put forward: As FDI inflows into Poland and enters the successive stages of its profitability life cycle, impact of equity on economic growth decreases, while the importance of reinvestment of earnings rises. In order to verify the hypothesis, the VECM model was used, supplemented with an extended reaction analysis. The research results confirm that among FDI components, mainly equities and reinvestment of earnings have a significant impact on GDP changes. In the short term, the inflow of equity has the most important impact on economic growth. In the long-time, the importance of equity decreases, while the importance of reinvestment of earnings rises.

Keywords: foreign direct investment (FDI), reinvestment of earnings, GDP, VECM model

JEL: C50, F21, F37, F43, O11

WPŁYW STRUKTURY FINANSOWEJ ZIB NA WZROST GOSPODARCZY W POLSCE

Streszczenie

Celem artykułu jest analiza wpływu komponentów finansowych zagranicznych inwestycji bezpośrednich (ZIB) na wzrost gospodarczy w Polsce w latach 2004–2018, ze szczególnym uwzględnieniem roli reinwestycji zysków. Sformułowano następującą tezę: wraz z napływem ZIB do Polski i przechodzeniem ich przez kolejne fazy cyklu życia maleje znaczenie wpływu akcji i innych form kapitału na wzrost gospodarczy, a rośnie znaczenie reinwestycji zysków. W celu weryfikacji tej hipotezy zastosowano model ekonometryczny VECM z rozszerzoną analizą reakcji. Wyniki potwierdzają, że wśród komponentów ZIB głównie akcje i inne formy udziału kapitałowego oraz reinwestycje zysków mają znaczny wpływ na zmiany PKB. W krótkim okresie największy wpływ na wzrost gospodarczy ma napływ kapitału akcyjnego i innych form udziału kapitałowego. W długim okresie znaczenie udziałów kapitałowych maleje, natomiast wpływ reinwestycji zysków wzrasta.

Słowa kluczowe: zagraniczne inwestycje bezpośrednie (ZIB), reinwestycje zysków, PKB, model VECM

JEL: C50, F21, F37, F43, O11

ВЛИЯНИЕ ФИНАНСОВОЙ СТРУКТУРЫ ПИИ НА ЭКОНОМИЧЕСКИЙ РОСТ В ПОЛЬШЕ

Резюме

Целью статьи является анализ влияния финансовых компонентов прямых иностранных инвестиций (ПИИ) на экономический рост в Польше в 2004–2018 гг., с особым учетом роли реинвестиции прибыли. Был сформулирован следующий тезис: вместе с притоком в Польшу прямых иностранных инвестиций и их прохождением через все фазы развития, уменьшается влияние на экономический рост акций и других форм капитала, но растет значение реинвестиции прибыли. Чтобы проверить эту гипотезу была применена эконометрическая модель VECM с расширенным анализом реакции. Результаты подтверждают, что среди компонентов ПИИ значительное влияние на изменения ВВП имеют главным образом акции и другие формы участия капитала, а также реинвестиция прибыли. В краткий период времени самое большое влияние на экономический рост имеет приток акционерного капитала и других форм участия капитала. В более длительный период значение участия капиталов уменьшается, зато влияние реинвестиции прибыли растет.

Ключевые слова: прямые иностранные инвестиции (ПИИ), реинвестиции прибыли, ВВП, модель VECM

JEL: C50, F21, F37, F43, O11