JMFS
Journal of Management and Financial Sciences

Volume XIV
•
Issue 42
pp. 25–38
SGH Warsaw School of Economics
Collegium of Management and Finance

Aneta Kosztowniak
K. Pulaski University of Technology and Humanities in Radom
National Bank of Poland[1]
ORCID: 0000-0001-6088-1899

What should the optimal financial structure of FDI inflows to Poland be for stimulating growth processes?

Abstract

The article aims to answer a question what should the optimal financial structure of FDI inflows to Poland be for stimulating growth processes**.** The study on the dependence between financial components of FDI inflows and GDP for Poland covers the period 2004: Q1–2019: Q4. Results of the VAR/VECM model and forecast error variance decomposition indicated that in the optimal (growth-enhancing) structure of FDI inflows the share of equities and the reinvestment of earnings should be maximised.

Keywords: FDI, reinvestment of earnings, equity, debt instruments, GDP, VECM
JEL Classification Codes: C50, F21, F37, F43, O47

[1] The views expressed in this study are the views of the author and do not necessarily reflect those of the National Bank of Poland.

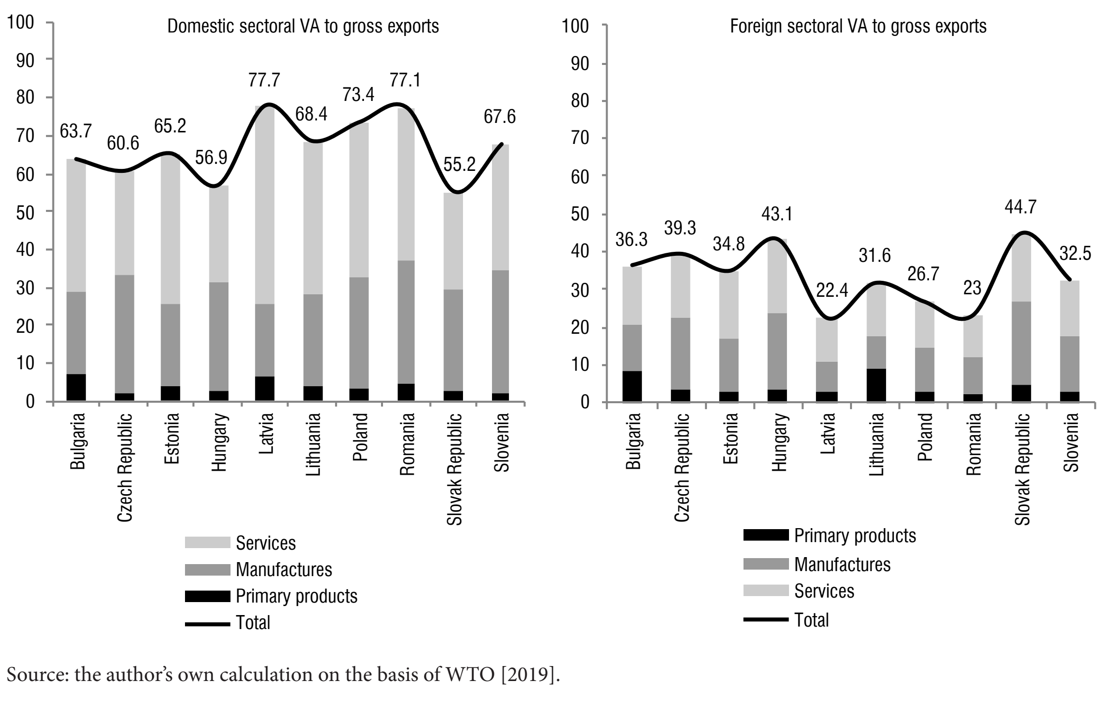
Introduction

The main premise to determine the optimal (growth-enhancing) structure of FDI inflows to Poland is to try to strengthen the positive impact of these investments on the accumulation processes in host countries, on the example of research for Poland.

According to the Eurostat data [2019], in the European Union (EU) between 2010 and 2016, the countries showed different values in terms of the share of value added by foreign-controlled enterprises at the level of individual EU Member States. In 2016, the highest shares of value added by foreign-controlled enterprises were observed in Hungary (51.4%), Slovakia (48.1%), Luxembourg (44.6%), and Poland (36.8%). In contrast, four EU Member States had shares under 20%: Cyprus (13.4%), Italy (15.8%), Greece (16.3%), and France (16.4%), as compared to the average for EU-28 (25.0%). These results lead to considerations on the significance of FDI inflows to the host countries.

The lower level of value added creation of foreign companies in Poland compared to the CEE countries was presented in Figure 1.

Figure 1. Domestic and foreign sectoral Value Added (VA) to gross exports in CEE-10 in 2015 (% share industry total gross exports)



Source: the author's own calculation on the basis of WTO [2019].

The article aims to answer a question what should the optimal financial structure of FDI inflows to Poland be for stimulating growth processes. The definition of the structure of FDI would be the added value of this work.

Among the important questions are the following:

1) How do the components of FDI inflows influence the degree of explaining GDP changes?
2) Which components of FDI inflows explain changes in GDP to the greatest extent?
3) Which components of FDI inflows explain changes in GDP to the lesser extent?
4) What should be the optimal FDI inflows structure to Poland that maximises the positive impact on growth processes?

The following thesis has been put forward: the optimal structure of FDI inflows to Poland is a structure that maximises equities and reinvestment of earnings as well as minimises the share of drawn debt instruments and dividend payments outside the host country.

This study contains five major parts (1) introduction, (2) a literature review, (3) the methodology, (4) the estimation results and (5) concluding remarks.

2. Literature review

There are numerous studies on the dependence between foreign direct investment (FDI) and economic growth. New theories of growth assume a positive impact of capital (also in the form of FDI) on production growth in both short- and long-term [Herzer et al., 2008]. In the models developed by followers of the real business cycle, arguments are raised about higher productivity of FDI in comparison to domestic capital. It is emphasised that capital spillover effects are stronger than capital diminishing returns [Liu et al., 2000, pp. 257–274; Gorynia et al., 2005, pp. 428–435; Lin et al., 2016, pp. 257–274; Ghebrihiwet, 2017, pp. 455–469].

The empirical literature has identified various effects of FDI (aggregated) on GDP in the host country: 1) positive effects – provided it has an equal (high) level of human capital [Borensztein et al., 1998, pp. 115–135], and a properly developed financial system [Alfaro et al., 2011, pp. 01–083]; and positive effects for CEE countries [Damijan et al., 2003, pp. 189–204]; 2) no influence on the economy of host countries [Carkovic, 2005, pp. 195–220]; 3) negative effects [Saltz, 1992, pp. 617–633; Menciger, 2003, pp. 491–509; Herzer et al., 2008].

In the case of FDI decomposition, i.e., division into greenfields and brownfields (mergers and acquisitions, M&A) – there are mainly the following conclusions:

- no impact of both forms of FDI on GDP [Calderón, 2004];
- greenfields support economic growth and M&A have a positive impact, provided that the host country has an adequate level of human capital [Wangand, 2009, pp. 316–330];
- greenfields support economic growth and M&A have no effect [Harms, 2014, pp. 1–35];
- greenfields have no impact on total factor productivity (TFP), while M&A have a positive impact on TFP [Ashraf et al., 2014].

Cause-and-effect relationships between FDI, production, and factors of production (total factor productivity, TFP) were also studied by Erricson [Erricson et al., 2001, pp. 122–132] for OECD host countries (Denmark, Finland, Norway, and Sweden), with the use of the VAR model. As a result of using the Granger procedure developed by Tod – Yamamoto [1995] and

Yamada – Tod [1998], 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 type of FDI inflows contributes to the economic growth in Norway. No correlations were found in the case of Finland and Denmark. Investigations of a bi-directional relationship revealed two implications for economic policy. Firstly, economic growth attracts inward FDI, secondly, 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 the changes in real GDP 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 et al. [2012] examined 10 European countries which underwent transformations e.g.: Bulgaria, Czechia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia in the years 1994–2008, using the Autoregression Model (ARDL).

Studies for Poland referring to relationships between FDI and PDP (factors of production) have been carried out by few authors [Misztal, 2012, pp. 9–26; Marona et al., 2013, pp. 333–350; Kosztowniak, 2016, pp. 307–332]. They used different methods e.g., the Vector Autoregression Model (VAR, ADRL) and the Vector Error Correction Method (VECM). The research findings confirmed a mutual relationship between FDI and GDP (factors of production).

We can add that many central banks' analyses are involved in forecasting FDI components for the purposes of the balance of payments estimates, e.g., for Danmark [Dagmaard et al., 2010, pp. 1–32], or Czechia [Novotnỳ, 2015, pp. 143–153; 2018, pp. 1–25] and are interested in FDI components.

Damgaard et al. [2010] from Danmark Nationalbank observed a significant correlation between direct investment equity income and balance of payments data. They also confirmed violation of the important statistical quality criterion of stability on the base econometric model for the Danish balance of payment in the period 1999–2008, and also found that data for expected private growth serve as useful indicators for the development in direct investment enterprises` profitability.

Another reason for interest in FDI components is also forecasting FDI outflows in order to assess tax revenues which may enter state budgets of the countries in which transnational corporations have their headquarters [Knetsch et al., 2016, pp. 1–36]. Knetsch and Nagengast form Deutsche Bundesbank applied a decomposition framework to a rich German dataset spanning 11 different investment classes and provided an account of the increase in the German investment income balance between 1999 and 2014. Focusing exclusively on the aggregate development of external assets and liabilities falls short of explaining the growth in German net investment income and around 40% of the increase is explained by changes in yields. Furthermore, their results highlight the importance of considering the composition of external assets and liabilities as well as portfolio changes in order to understand the dynamics of the investment income balance.

The above-mentioned literature focuses on the impact of FDI (all components) on GDP and mutual relations from the global (joint) perspective. However, there are no studies in the literature on the impact of the financial structure of FDI (individual components) on the economic growth of investors' countries of origin and host countries.

The distinction between the components of FDI in the theoretical literature is found mainly in the so-called the FDI profitability life cycle. This cycle refers to the accumulated FDI inflows, i.e., to FDI inward stock and thus to the component of reinvested profits. In the theory of the FDI profitability life cycle, three stages of the cycle and changes in the structure of FDI are isolated. According to Brada [2003], the profitability life cycle of FDI has three stages.

This profitability path of FDI refers to FDI inward stock, because this is the cumulative FDI inflows value and the FDI cumulative profitability: Stage 1 (opening) is connected with the expenditures of foreign investors in the host country and means negative profitability.

In stage 2 (growth) there is a profit, peaking at around the 6th year of the cycle. Stage 3 (repatriation) is connected with the division of the achieved profit, the dividend is paid out. Novotnỳ et al. [2008, pp. 143–153] indicated that among the countries of Central and Eastern Europe, the full-fledged FDI life cycle usually includes a period of 15 years, followed by projection toward zero annual profitability. Still, so far there has been no research on the impact of the structure of FDI on GDP changes. In this new area, this article attempts to add value.

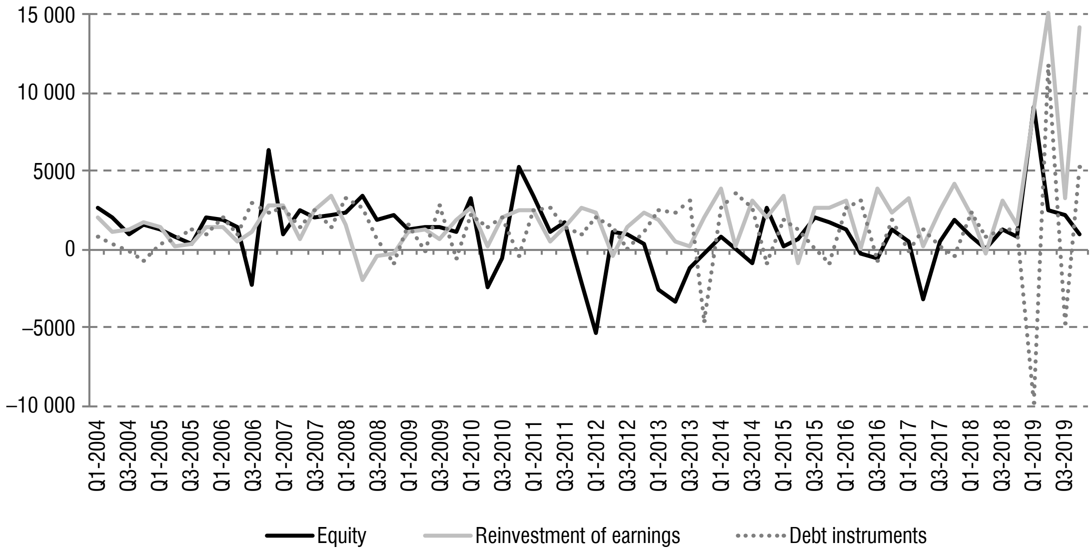
3. Methodological issues

According to the OECD definition [2008], direct investment capital comprises equity capital in the form of shares and other equity, reinvestment of earnings and assets and liabilities vis-á-vis debt instruments. Equity, other than reinvestment of earnings (EQ) 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 equity nature. Reinvestment of earnings (RoE) denotes the part of profits accruing to a direct investor, which remains in the direct investment enterprise and which is allocated to its further development. Debt instruments (DI) include, among others, credits and loans, debt securities, and other unsettled payments between entities in a direct investment relationship [OECD, 2018, pp. 70–72; NBP, 2017].

During the analysed period (divided into quarters) 2004: Q1–2019: Q4, FDI inflows showed significant fluctuations. These fluctuations concerned both the total inflows value as well as its structure (components), assuming generally positive but also negative values (e.g., 2010: Q2, 2012: Q1, 2017: Q2, 2019: Q1, Q3) (Figure 2).

Throughout the period 2004: Q1–2018: Q4, the average share of EQ in FDI inflows prevailed (52.0%) against RoE (27.1%) and DI (17.7%). While in 2004: Q1–2013: Q4, the average EQ share was 66.6%, for the RoE 20.3% and DI 13.1%. However, it should be noted that in the last 5 years (2014: Q1–2019: Q4), the structure of FDI inflows changed fundamentally. In the years 2014–2019, the average share of EQ decreased to 27.0%, the share of RoE increased to 40.2% and the share of DI to 27.7%.

Figure 2. Components of FDI inflows in Poland in the years 2004: Q1–2019: Q4 (quarters, USD millions)



Source: the author's own calculations on the basis of *Balance of payment, Financial account – Direct investment* [NBP, 2020].

In the field of research procedure this study uses quarters time-series data covering the period 2004: Q1–2019: Q4 (64 quarters) to analyse the relationship between the structure of FDI inflows and GDP in Poland using the VECM and forecast error variance decomposition analysis. The research is based on the statistics of the balance of payment from the National Bank of Poland [2020] and OECD Internet databases [2020]. NBP compiles data on direct investment in compliance with the OECD definition [OECD, 2018, pp. 70–72].

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

$$GDP_t = \alpha_0 + \alpha_1 EQ_t + \alpha_2 RofE_t + \alpha_3 DI_t + \xi_i \tag{1}$$

The model used consists of the dependent variable (GDP) and three independent variables, where: *GDP* – Gross Domestic Product, GDP (USD millions), *EQ* – Equity other than reinvestment of earnings (USD millions), *RofE* – Reinvestment of earnings (USD millions), *DI* – Debt instruments (USD millions), ξ_i – random component, *t* – period.

All the variables expressed in terms of value have been included in the form of natural logarithms from quarterly data. Preliminary analysis of time series graphs for the years 2004: Q1–2019: Q4 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 variable being the financial instruments of FDI, we can speak about the occurrence of a stationary process. ADF tests were carried out for the first difference variables, where a=1, process I (1). Next, the ultimate confirmation of stationarity requires carrying out an additional test, e.g., KPSS (Table 1).

Table 1. KPSS stationarity test results for basic variables and first differences of variables

Specification		GDP	EQ	RoE	DI	d_GDP	d_EQ	d_RoE	d_DI
Without a trend	Test statistic	1.54916	0.52187	0.53653	0.11972	0.20619	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	0.152398	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: the author's own calculations.

According to these criteria, i.e., the Aikake information criterion (AIC), Schwartz-Bayesian information criterion (BIC) and Hannan-Quinn information criterion (HQC), the best lag is observed with minimal (*) values of the respective information criteria for: AIC=7, BIZ=1 and HQC=2, with the maximum lag order 8 for the VAR/VECM model. Ultimately, the lag order 4 was accepted.

The stability of the VAR model was verified by using a unit root test which was carried out. The test indicates that in the analysed model equation roots are lower than one, which means that the model is stable and may be used for further analyses. Next, the verification of co-integration was carried out using two tests: the Engle-Granger and Johansen test [1995]. The results of the tests comprehensively confirmed co-integration for lag 1. This is proved by the values of test statistic τ_e which are lower than critical values $\tau_{critical}$, levels of asymptotic p-values and integrated processes a=1 and process I (1), at the significance level $\alpha = 0.05$ (Table 2).

Table 2. Results of the Engle-Granger co-integration test

Specification	d_GDP	d_EQ	d_ RoE	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)
Test statistic tau_c(1) τ_e (asymptotic p-value), lag order = 4	–2.61942 (0.08896)	–6.14435 (5.343e-008)	–3.88987 (0.00212)	–5.13795 (1.057e-005)

Source: the author's own calculations.

The results of the Johansen [1995] test (including trace and eigenvalue) show that at the significance level of 0.05 co-integration of order one occurs (Table 3).

Table 3. The Johansen test

Rank	Eigenvalue	Trace test [p-value]	Lmax test [p-value]	
0	0.56956	105.55 [0.0000]	45.520 [0.0000]	
1	0.48210	60.035 [0.0000]	35.530 [0.0001]	

cont. Table 3

Rank	Eigenvalue	Trace test [p-value]	Lmax test [p-value]	
2	0.29803	24.504 [0.0013]	19.108 [0.0066]	
3	0.095094	5.3959 [0.0202]	5.3959 [0.0202]	
eigenvalue	0.56956	0.48210	0.29803	0.095094

Source: the author's own calculations.

Due to the occurrence of unit element in all-time series and the existence of cointegration between model variables, it was possible to extend and transform the model into vector error correction models. The verification of co-integration was carried out with the use of two tests: the Engle-Granger and Johansen test, 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 of order 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 model can be written down as:

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

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

where:

$$\Gamma_i = \sum_{j=1}^{i} A_j - \mathrm{I}, \; i = 1, 2, \ldots, k-1, \quad \Gamma_k = \pi = -\pi(1) = -\left(\mathrm{I} - \sum_{i=1}^{k} A_j\right)$$

and I is a unit matrix.

4. The estimation results

The analysis of the VECM model allows us to draw the following conclusions: the levels of vector α 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.

The 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 deviations adjustments occur for GDP (0.99%), EQ (0.59%), and the worst for RoE (1.11%). The values of the coefficient of determination R^2 reveal adjustment 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 4).

To confirm the correctness of the VECM model results, two tests were carried out verifying the occurrence of autocorrelation, i.e.: Autocorrelation Ljung-Box Q' test, lag order for test = 4, and ARCH test = lag order for test = 4. Ljung-Box tests (LMF, LM, Q) were carried out to verify autocorrelation, for lag order 4. The verifying statistics using the autocorrelation coefficient function (ACF) in the form Q' and empirical p-value levels higher than the nominal one $\alpha = 0.05$, let us conclude that there is no autocorrelation in the residual process [Kufel, 2011, pp. 110–111].

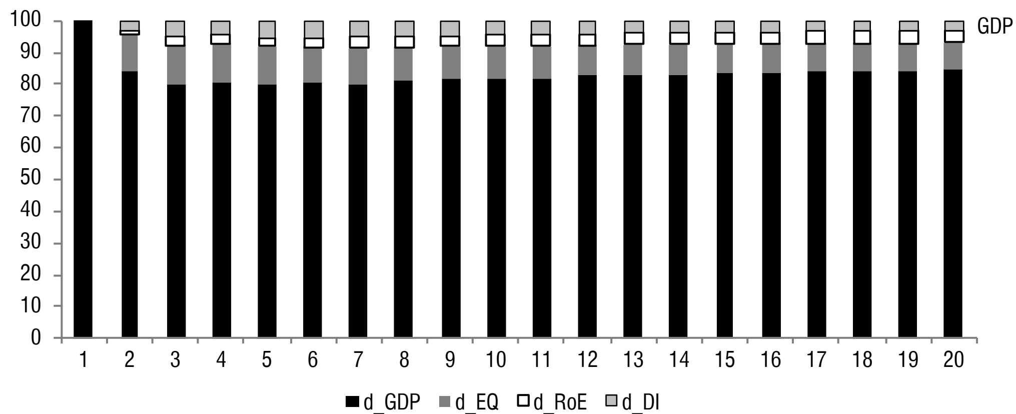
Table 4. The main research results for the VECM model

VECM system, lag order 4. Maximum likelihood estimates, observations 2005:2–2019:4 (T = 59) Cointegration rank = 1, Case 3: Unrestricted constant				
β (cointegrating vectors, standard errors in parenthes)			α (adjustment vectors)	
d_GDP	1.0000	(0.00000)	d_GDP	–0.0099135
d_EQ	–66.262	(21.205)	d_EQ	0.0058891
d_RoE	–143.73	(47.394)	d_RoE	0.0011175
d_DI	222.37	(35.839)	d_DI	–0.013643
Specification	d_d_GDP	d_d_EQ	d_d_RoE	d_d_DI
	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)
EC1	–0.00991351 (0.3355)	0.00588909 (0.1690)	0.00111751 (0.5653)	–0.0136433 (<0.0001)
R2	0.674358	0.677426	0.879644	0.912453
DW	1.954804	2.092779	2.218278	2.116974

Source: the author's own calculations.

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 the weighted least squares method. Thus, the results of both tests which were carried out confirm the credibility of the VECM model and allow us to draw conclusions on their basis.

Figure 3. Forecast variance decomposition for GDP (quarters), %

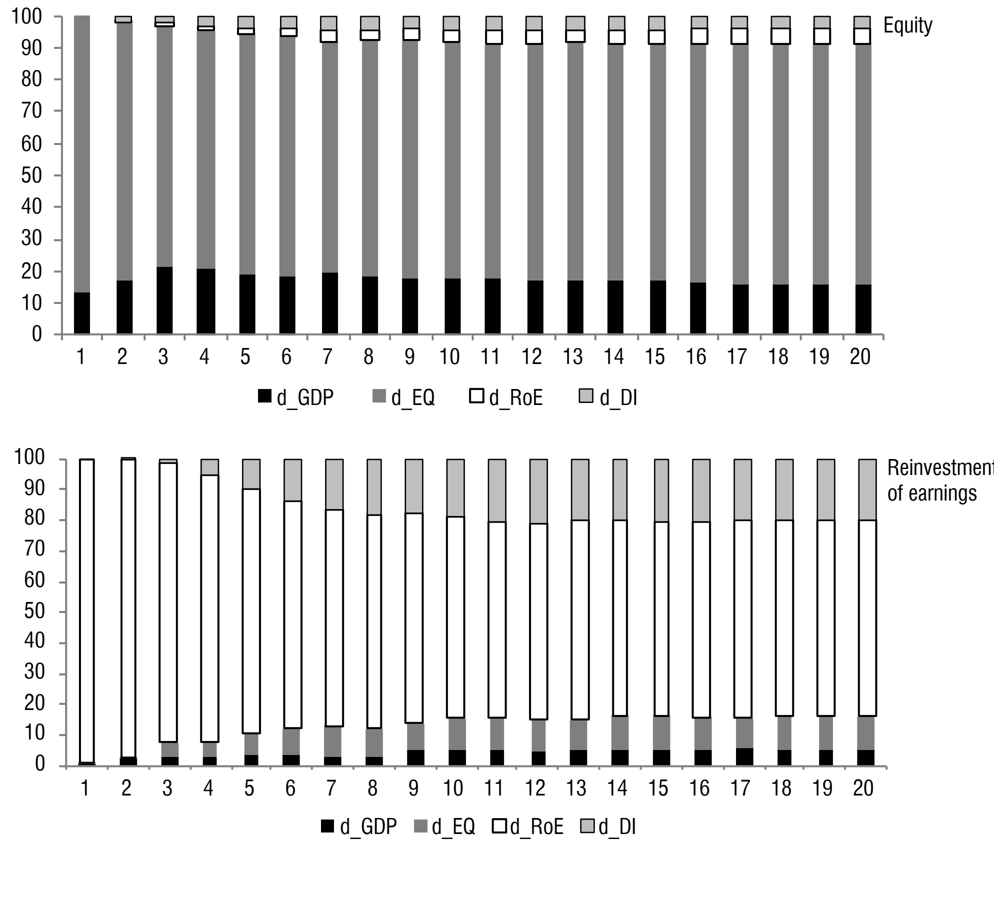


Source: the author`s own calculations.

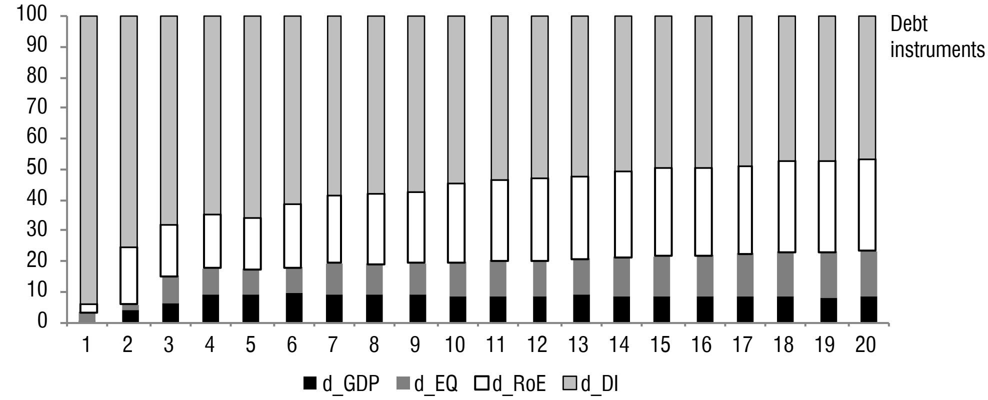
GDP and all FDI components were analysed by means of decomposition of variance in the forecast horizon of 20 quarters (Figure 3 and 4). The results of GDP decomposition indicate that in period 1 these changes are in 100% accounted for by their own forecast errors. In period 2, their own changes lose in significance (84.0%), and such FDI components as RoE (1.4%), equity (11.8%) and DI (2.8%) grow in significance. In the following periods, GDP's own changes stabilise the constant effect at the level of 84.7%, whereas RoE grow (3.8%) and similarly DI (3.0%), EQ loses in significance (8.4%). Thus, we can conclude that FDI significance in forecasting the degree of explanation of GDP amounts jointly to ca. 15.2% in the 20th quarter, that is 5 years.

The results of decomposition for EQ show that the degree of its explanation in periods 1 and 20 of the forecast depends, first of all, on forecast own errors (86.7% and 75.2%, respectively) and when it comes to GDP – 13.3% and 16.1%, respectively.

Figure 4. Forecast variance decomposition for EQ, RoE, and DI (quarters), %



cont. Figure 4



Source: the author's own calculations.

Next, the results of the degree of explanation of changes in RoE indicate that in period 1 these changes are accounted for in 99.2% by forecast own errors, in 0.8% by GDP and 0.7% by EQ and in 0.0% by DI. In period 20 of the forecast the degree of explanation of RoE distributed almost evenly between: RoE own changes (63.4%) and DI (20.1%), and also equity (11.0%) and GDP (5.4%). In the case of DI, the key significance in their explanation have forecast own errors (93.8% and 46.9%), and RoE (2.8% and 29.9%), especially in period 20 GDP (0.0% and 8.6%).

5. Summary

Based on the research, the following conclusions were formulated.

1. Among the financial components of FDI inflows, equity has the largest impact on GDP, while the impact of RoE and DI is lower. Precisely, GDP decomposition analysis indicates that the current GDP changes, to the largest extent, are explained by forecast: own errors from 100% in 1st period to 84.7% in the 20th period, and from 2nd period to 20th period – in the case of equity from 11.9% to 8.4%, RoE from 1.3% to 3.8%, and DI from 2.8% to 3.0%.
2. Jointly, the degree of explanation of GDP by the above-mentioned FDI financial instruments amounts to ca. 15.9% (2nd period) and 15.2% (20th period). That is, the importance of equity decreases with other FDI components, although the global explanation of changes in GDP by FDI changes remains comparable.
3. By highlighting the results of the research and the fact that EQ create directly new investments and RoE constitute an additional supply of already completed investments (expansion). On the other hand, borrowed DI support liquidity and they can be a transfer tool within a capital group, but they are not the basis for new investments.
4. It should be specified that the optimal structure of FDI inflows to Poland is a structure that maximises equities and reinvestment of earnings and minimises the share of drawn debt instruments and dividend payments outside the host country.

References

Compact publications

1. Carkovic, M., Levine, R. (2005). Does foreign direct investment accelerate economic growth? In: T. Moran, E. Graham, M. Blomström (Eds.), *Does foreign direct investment promote development?* (pp. 195–220). Washington, DC: Institute for International Economics.
2. Johansen, S. (1995). *Likelihood-Based Inference in Cointegrated Vector Autoregressive Models*. Oxford: Oxford University Press.
3. Kufel, T. (2011). *Ekonometria*. Warszawa: PWN, pp. 110–111.
4. NBP (2017). *Balance of Payments Statistics. Methodological notes*. Warsaw NBP Department of Statistics.
5. OECD (2018). *Benchmark Definition of FD*I. 4th edition. Paris: OECD, pp. 60–63.
6. Piłatowska, M. (2003). *Modelowanie niestacjonarnych procesów ekonomicznych. Studium metodologiczne.* Toruń: Uniwersytet M. Kopernika.

Papers and studies

1. Acaravci, A., Ozturk, I. (2012). Foreign Direct Investment, Export and Economic Growth: Empirical Evidence from New EU Countries. *Romanian Journal of Economic Forecasting*, 2, pp. 52–67.
2. Alfaro, L., Chanda, A., Kalemli-Ozcan, S., Sayek, S. (2011). FDI and economic growth: The role of local financial markets. *Harvard Business School, Working Paper*, 64(1), pp. 01–083.
3. Ashraf, A., Dierk, H., Nunnenkamp, P. (2014). The Effects of Greenfield FDI and Cross-border M&As on Total Factor Productivity. *MPRA Pape*r, 65060, pp. 1–41.
4. Borensztein, E., De Gregorio, J., Lee, J.W. (1998). How Does Foreign Investment Affect Growth? *Journal of International Economics,* 45, pp. 1–21.
5. Brada, J.C., Tomšík, V. (2003). *Reinvested Earnings Bias, the 'Five Percent' Rule and the Interpretation of the Balance of Payments – With an Application to Transition Economies*. William Davidson Institute Working Paper No. 543, p. 22.
6. Calderón, C., Loayza, N., Servén, L. (2004). *Greenfield Foreign Direct Investment and Mergers And Acquisitions: Feedback And Macroeconomic Effects*. World Bank Policy Research Working Paper No. 3192, pp. 1–31.
7. Damgaard, M.L., Laursen, F., Wederinck, R. (2010). *Forecasting direct investment equity income for the Danish Balance Payments*. Danmark's National Bank Working Papers No. 65, pp. 1–32.
8. Damijan, J., Knell, M., Majcen, B., Rojec, M. (2003). The Role of FDI, R&D Accumulation and Trade in Transferring Technology to Transition Countries. *Economic Systems*, 27, pp. 189–204.
9. Ericsson, J., Irandoust, M. (2001). On the Causality between Foreign Direct Investment and Output: A Comparative Study. *The International Trade Journal*, 15(1), pp. 122–132.
10. Ghebrihiwet, N. (2017). Acquisition or direct entry, technology transfer, and FDI policy liberalization. *International Review of Economics & Finance,* 51, pp. 455–469.

11. Gorynia, M., Nowak, J., Wolniak, R. (2005). Fostering competitiveness of polish firms: some musings on economic policy and spatial expansion. *International Management Development Association*, XIV, pp. 428–435.
12. Harms, P., Méon, P.-G. (2014). *Good and Bad FDI: The Growth Effects of Greenfield Investment and Mergers and Acquisitions In Developing Countries*. CEB Working Paper 14/021, pp. 1–35.
13. Herzer, D., Klasen, S., Howak-Lehmann, F. (2008). In search of FDI-led growth in developing countries: The way forward*, Economic Modelling*, 25(5), pp. 793–810.
14. Knetsch, T.A., Nagengast, A.J. (2016). *On the dynamics of the investment income balance*. Deutsche Bundesbank. Discussion Paper, 21, pp. 1–36.
15. Kosztowniak, A. (2016). Verification of the relationship between FDI and GDP in Poland. *Acta Oeconomica,* 66(2), pp. 307–332.
16. Lin, M., Kwan, Y.K. (2016). FDI technology spillovers, geography, and spatial diffusion. *International Review of Economics & Finance,* 43, pp. 257–274.
17. Liu, X., Siler, P., Wang Ch. (2000). Wei Y.: Productivity Spillovers from Foreign Direct Investment: Evidence from UK Industry Level Panel Data. *Journal of International Business Studies,* 3rd Qtr., 31(3), pp. 407–425.
18. Marona, B., Bieniek, A. (2013). Wykorzystanie modelu VECM do analizy wpływu bezpośrednich inwestycji zagranicznych na gospodarkę Polski w latach 1996–2010. *Acta Universitatis Nicolai Copernici- Ekonomia,* XLIV (2), pp. 333–350.
19. Mencinger, J. (2003). Does foreign direct investment always enhance economic growth? *International Review for Social Sciences,* Kyklos, 56(4), pp. 491–509.
20. Misztal, P. (2012). Bezpośrednie inwestycje zagraniczne jako czynnik wzrostu gospodarczego w Polsce. *Finanse*, 1(5), pp. 9–26.
21. Novotnỷ, F. (2015). *Profitability life cycle of foreign direct investment and its application to the Czech Republic*. Czech National Bank, Working Paper Series No. 11, pp. 1–25.
22. Novotný, F. (2018). Profitability Life Cycle of Foreign Direct Investment: Application to the Czech Republic. *Emerging Markets Finance and Trade*, 54(7), https://doi.org/10.1080/1540496X.2017.1316259, pp. 1623–1634.
23. Novotný, F., Podpiera, J. (2008). The profitability life-cycle of direct investment: an international panel study. *Economic Change and Restructuring*, 41(2), pp. 143–153.
24. Saltz, I. (1992). The negative correlation between foreign direct investment and economic growth in the Third World: Theory and Evidence. *Rivista Internazionale di Scienze Economiche e Commerciali*, 39, pp. 617–633.
25. Wangand, M., Wong, M.C.S. (2009). What Drives Economic Growth? The Case of Cross-Border M&A and Greenfield FDI Activities. *International Review for Social Sciences*, 62(2), pp. 316–330.

Internet materials

1. Eurostat (2019). *Foreign-controlled enterprises in EU: value added*. Retrieved from: https://ec.europa.eu/eurostat/webproducts-eurostat-news/-/DDN-20190411–1 [accessed: 11.04.2019].
2. NBP (2020). *Balance of payments, Financial account – Direct investment*. Retrieved from: http://www.nbp.pl/home.aspx?f=/statystyka/bilans_platniczy/bilansplatniczy_kw.html [accessed: 10.04.2020].
3. OECD (2020). OECD Stat. Retrieved from: http://stats.oecd.org/ [accessed: 10.05.2020].
4. WTO (2020). *Trade in Value Added and Global Value Chains, 2019*. Retrieved from: http://www.wto.org [accessed: 10.01.2020].