



Munich Personal RePEc Archive

# **The Influence of Foreign Direct Investment on Domestic Investment Processes in Latvia**

Titarenko, Deniss

Transport and Telecommunication Institute

September 2005

Online at <https://mpra.ub.uni-muenchen.de/18192/>  
MPRA Paper No. 18192, posted 15 Dec 2009 07:56 UTC

# THE INFLUENCE OF FOREIGN DIRECT INVESTMENT ON DOMESTIC INVESTMENT PROCESSES IN LATVIA

**Deniss Titarenko**

*Transport and Telecommunication Institute  
Lomonosova str. 1, Riga, LV-1019, Latvia  
Tel.: (+371)-7100573. E-mail: den\_titar@tsi.lv*

The primary aim of the paper is to estimate the extent of FDI influence on domestic investment processes in Latvia. Author analyses the theoretical issues of FDI effect on capital formation process in the host economy. The results of econometric analysis of the total investment model presented in this paper show the evidence of crowding out long-term effect of FDI on investment in Latvia.

**Key words:** foreign direct investment, econometric analysis of the total investment model, crowding in/out effect.

## INTRODUCTION

Recent theoretical and empirical studies show that foreign investments as a part of international capital movement play a crucial role in sustainable development of host economies. Nowadays free capital flows across national borders allow capital to seek out the highest rate of return. International flows of capital reduce the risk faced by owners of capital by allowing them to diversify their lending and investment.

In economic literature, international investments usually are identified as long-term international movements, which are divided into portfolio and direct investment.

International investment in the form of portfolio investment is the purchase of a stock or bond issued in a foreign currency. Portfolio investment includes investment whose primary purpose is to get future income, but not to acquire control in a firm. The economic literature stresses that this is the essential distinction between portfolio and direct investment. [5; 303] Capital flows are typically designated as foreign *direct* investment (FDI) when a foreigner owns 25% or more of a firm (in the US – 10% or more), regardless of whether the capital flows are used to purchase new plant and equipment or to buy an ownership position in an existing firm. [9; 462]

FDI may take a number of different forms including:

- ✓ the establishment of a new enterprise in an other country – either as a branch or as a subsidiary;
- ✓ the expansion of an existing overseas branch or subsidiary;
- ✓ the acquisition of an overseas business enterprise or its assets. [2; 110]

The significant role in the supply of foreign capital play multinational enterprises (MNEs). MNEs as the firms with significant FDI assets are characterized by their ability to derive and transfer capital resources worldwide and to operate facilities of production and penetrate markets in more than one country, usually on a global scale. Significant part of the MNEs assets deployed into the host economies are intangible assets. They include technology, management skills, channels for marketing products internationally, product design, quality characteristics, brand names, etc. The gains to host countries from FDI can take several forms.

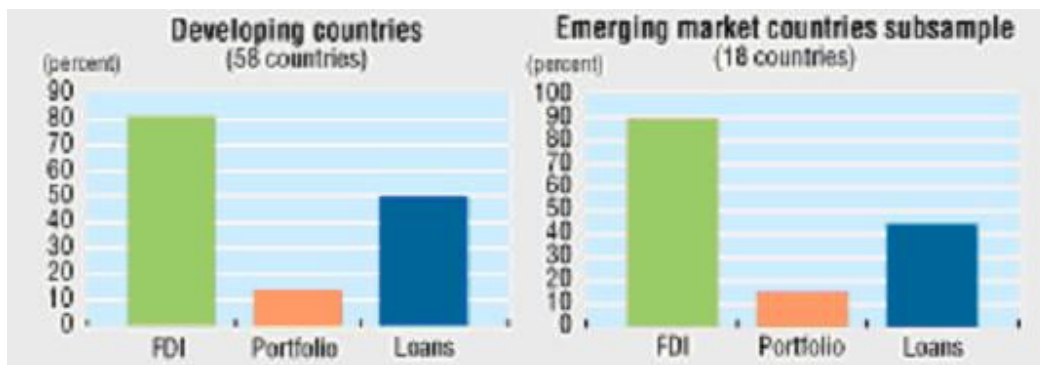
First of all FDI provides capital inflows that finance current account deficit and compensate for insufficient capital formation of the local firms. Furthermore FDI allows the transfer of technology – particularly in the form of new varieties of capital inputs – that cannot be achieved through financial investments or trade in goods and services. FDI can also promote competition in the domestic input market, to improvement of knowledge and managerial skills and to other important inputs for the entrepreneurial capacity expansion. Recipients of FDI often gain employee training in the course of operating the new

businesses, which contributes to human capital development in the host country. Also profits generated by FDI contribute to corporate tax revenues in the host country. Thus FDI improve the international competitiveness of the local firms and the overall economic performance and stimulate host economy integration into international markets, distribution and production networks.

In evaluating the impact of FDI on development, however, a key question is whether MNEs crowd in domestic investments (as, for example, when their presence stimulates new downstream or upstream investments that would not have taken place in their absence), or whether they have the opposite effect of displacing domestic producers or pre-empting their investment opportunities.

A comprehensive study by Bosworth and Collins (1999) provides evidence on the effect of capital inflows on domestic investment for 58 developing countries during 1978-95<sup>1</sup>. The authors distinguish among three types of capital inflows: FDI, portfolio investment, and other financial flows (primarily bank loans).

Bosworth and Collins find that an increase of a dollar in capital inflows is associated with an increase in domestic investment of about 50 cents. (Both capital inflows and domestic investment are expressed as percentages of GDP.) The results of this analysis also show the significant differences among types of inflow. FDI appears to bring about a one-for-one increase in domestic investment; there is virtually no discernible relationship between portfolio inflows and investment (little or no impact); and the impact of loans falls between those of the other two. These results hold both for the 58-country sample and for a subset of 18 emerging markets. (see the Chart 1.) [7]



**Chart 1. The Influence of Different Types of Capital Inflows on Domestic Investment [7]**

In consideration of such significance of FDI (as shown above) the estimation of FDI influence on domestic investment processes is a rather important issue. In recent theoretical and empirical work, investment has been identified as a key variable determining economic growth. Thus, if FDI crowds out domestic investment or fails to contribute to capital formation, there would be good reasons to question its benefits for the development of recipient economies. This paper addresses the question of whether FDI causes crowding in (CI) or crowding out (CO) of domestic investment in Latvia.

## 1. THE THEORETICAL ISSUES OF FDI INFLUENCE ON DOMESTIC INVESTMENT

FDI contributes directly to overall investment, because it is part of it. We can present the total gross investment ( $I$ ) in the simple form as real domestic investment ( $I_d$ ) plus real foreign investments ( $I_f$ ):

$$I \equiv I_d + I_f \quad (1.) [1]$$

Foreign investments  $I_f$  can be thought of as being a function of FDI.

<sup>1</sup> The sample covers nearly all countries of Latin America and Asia and many countries in Africa.

A very important question as regards the development influence of FDI is the extent to which it affects investment by domestic firms ( $I_d$ ). If it has no effect whatsoever, any increase in FDI ought to be reflected in a lat-for-lat increase in total investment. If FDI *crowds out* (CO effect) investment by domestic firms, the increase in  $I$  ought to be *smaller* than the increase in FDI. Finally, if there is *crowding in* (CI effect),  $I$  ought to increase by *more* than the increase in FDI.

The effects of FDI on investment of course may vary from country to country, depending on domestic policy, the kinds of FDI that a country receives, and the strength of domestic enterprises. It is possible, however, to specify conditions for CI or CO effect.

The foreign investments which introduce goods and services that are new to the domestic economy are more likely to have favourable effects on capital formation than foreign investments in areas where there already exist domestic producers. In the former case, the effects on capital formation will be positive because domestic producers do not have the knowledge required to undertake these activities and, therefore, foreign investors do not displace domestic investors.

If FDI enters the economy in sectors where there are competing domestic firms, foreign investment may take away investment opportunities that were open to domestic entrepreneurs prior to the foreign investments. The contribution to total capital formation of such FDI is likely to be less than the FDI flow itself.

This leads to a conclusion that the sectoral distribution of FDI can be significant factor which determines the influence of FDI on capital formation process. When the sectoral distribution of FDI is substantially different from the distribution of the existing capital stock or of production, the contribution of FDI to capital formation will be more positive than when the distribution of FDI follows roughly the existing sectoral distribution of the capital stock. In other words, the relationship between FDI and domestic investment is likely to be complementary when investment is in an undeveloped sector of the economy (owing to technological factors or to the lack of knowledge of foreign markets). In developing countries the attempts of domestic entrepreneurship to expand in the new undeveloped sector of economy usually are very costly, especially in high technology sectors where the financial and technological requirements run too far ahead of domestic capabilities.

On the other hand, FDI is more likely to substitute for domestic investment when it takes place in sectors where there exist plenty of domestic firms. The same may occur where domestic firms already have access to the technology that the MNEs bring into the country.

It could be argued that FDI can lead to investments by domestic firms in order to become more competitive. However, given the vast technological superiority of MNEs, their investments are more likely to displace domestic firms, and even cause their bankruptcy, than to induce domestic firms to invest.

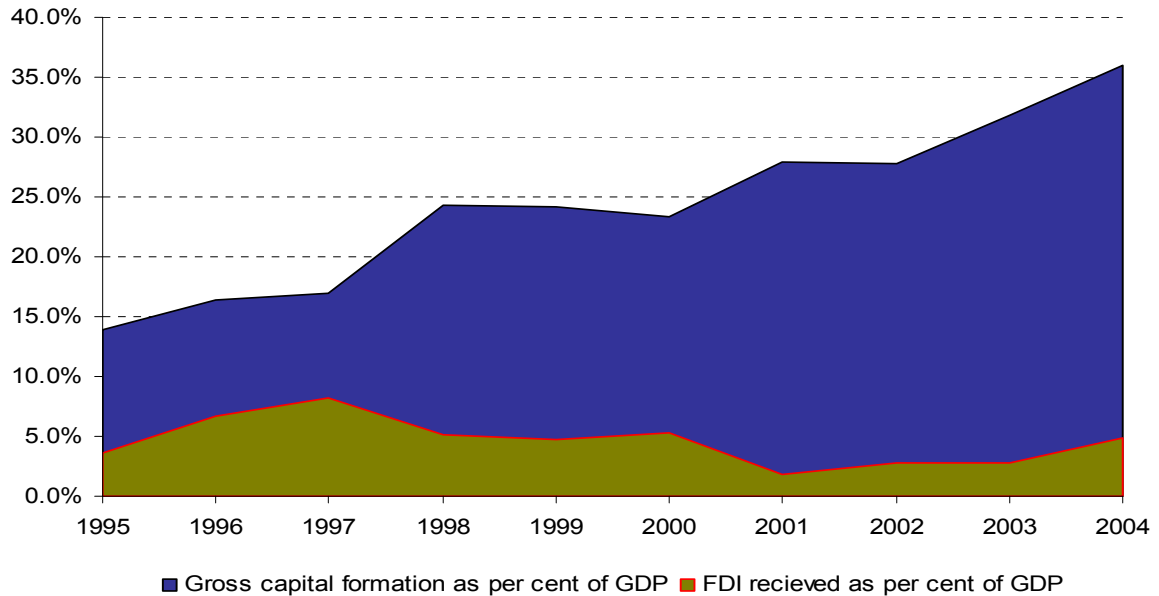
Also it should be noted that mergers and acquisitions may not lead to increase in the physical capital of a host country. In some cases, the acquisition of a domestic firm is almost akin to a portfolio investment, with foreign investor doing nothing to improve the operation of the domestic firm.

The main conclusion which emerges from the short theoretical analysis given above is that the positive influence of FDI on domestic investment is not assured. The extent of FDI influence on domestic investment of course is an empirical question, and undoubtedly the situation will vary from country to country. In order to test the FDI for CI or CO effect in Latvia the author will analyse the model of total investment presented in the third part of the paper.

## 2. FOREIGN DIRECT INVESTMENT DYNAMICS IN LATVIA

At the end of 2004 the foreign direct investment stock in Latvia amounted to 2318.3 million LVL or 31.5% of GDP and the volume of the FDI inflow in the last four years equalled on average to 17% of fixed investment. [12; 64] In 2004 the amount of the FDI inflow in Latvia reached 350.2 million LVL which was

twice more than in 2003. [12; 64] The dynamics of intensity<sup>2</sup> of investment processes in Latvia are presented in Chart 2.



**Chart 2. The Intensity of Gross Capital Formation and FDI in Latvia 1995-2004 (% of GDP)<sup>1</sup>**

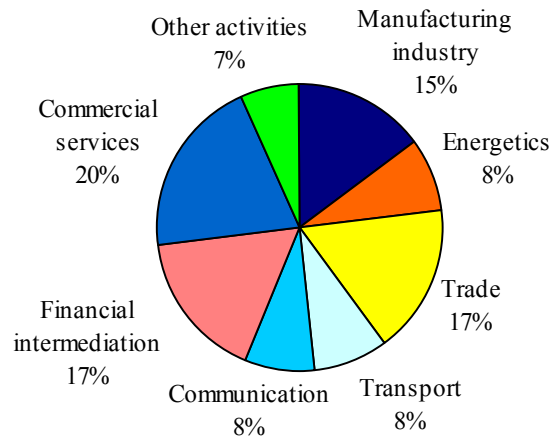
As we see from Chart 2, the highest FDI intensity during the overview period was in 1997 what can be associated with large scale privatization process in Latvia. During the next 4 years FDI intensity is falling and only for the last 3 years again shows moderate growing tendency what can be associated with the influence of EU enlargement process. Significant fall of FDI intensity in Latvia in 2001 was caused by “Hansabank group” reorganization, when all “Hansa Capital” owned subsidiaries in Latvia and Lithuania were sold to “Hansabank Group” owned banks in these countries (the approximate value of this arrangement in Latvia was about 100 mln. LVL).

The main conclusion that emerges from the analysis of data presented in chart 1 is that over the last 10 years the intensity of total investment (gross capital formation) shows considerable growing tendency while the intensity of FDI during this period is relatively low and does not show significant growth tendency. In spite of positive FDI dynamics during the last 3 years it's should be stressed that at the end of 2004 FDI amounted to 1002 LVL per capita, which is one of the lowest indicators among the new EU member states. [12, 63]

According to data of the Bank of Latvia, the biggest amounts of investment have been received from Germany, Sweden, Denmark, Finland, USA, Norway, Estonia and Russia, contributing to almost 80% of all FDI stock in Latvia. [12, 64] Majority of these countries are also the biggest trade partners of Latvia. The sectoral composition of FDI in Latvia in 2004 is presented in Chart 3.

<sup>2</sup> Gross capital formation intensity was calculated as gross capital formation and GDP ratio. FDI intensity was calculated as FDI and GDP ratio. All data is in average 2000 year prices.

Calculations based on data from annual statistical database of Central Statistical Bureau of Latvia  
<http://data.csb.lv/EN/dialog/statfile1.asp?xu=&yp=&lang=1>



**Chart 3. FDI Stock by Kind of Activity in Latvia (%), 2004** [12; 65]

As we see from chart 3, the highest share in the total structure of FDI stock belongs to the commercial services sector. The main activity of foreign investors is concentrated in 4 economy sectors - commercial services, financial intermediation, transport and communication and trade. The total share of these sectors amounts to 70% of FDI stock in Latvia. Such distribution of FDI pretty precisely corresponds to the sectoral distribution of total investment and sectoral structure of GDP in Latvia.

It should be noted that FDI in production of goods during the last years grew almost twice faster than in services, but only a few so-called greenfield projects, involving introduction of new and modern technologies by foreign investors, have been implemented.

### 3. TESTING OF THE TOTAL INVESTMENT MODEL FOR FDI CROWDING IN OR CROWDING OUT EFFECT

A model of total investment was estimated for a quarterly data for Latvian economy over the period 1995–2004. Following the approach described in Agosin and Mayer (2000) the initial investment equation used for testing for CI or CO effects was of the following form:

$$I_t = \alpha + \beta_1 F_t + \beta_2 F_{t-1} + \beta_3 F_{t-2} + \beta_4 F_{t-3} + \beta_5 F_{t-4} + \beta_6 I_{t-1} + \beta_7 I_{t-2} + \beta_8 I_{t-3} + \beta_9 I_{t-4} + \\ + \beta_{10} G_{t-1} + \beta_{11} G_{t-2} + \beta_{12} G_{t-3} + \beta_{13} G_{t-4} + \varepsilon_t, \quad (2)$$

where  $I$  is investment/GDP ratio;  $F$  is FDI/GDP ratio;  $G$  is growth of GDP;  $\alpha$  is fixed country effect and  $\varepsilon$  is a serially uncorrelated random error.

The investment equation 2 represents the total investment as the sum of domestic investment and FDI (based on equation 1).

The resources that cross the exchanges as FDI are often not used at once to finance real investment. There is a lag between FDI and real investment – so the lagged explanatory variables of investment equation were used.

The growth rate ( $G$ ) was used as the explanatory variable of desired level of capital stock of domestic firms. Equation 2 is a version of total investment model with adaptive expectations with respect to the growth rate<sup>3</sup>.

<sup>3</sup> where expected growth  $G_t^e = \eta_1 G_{t-1} + \eta_2 G_{t-2} + \eta_3 G_{t-3} + \eta_4 G_{t-4}$ .

The data of recent research (Stikuts (2003, 2004)) shows, that the difference between actual output and full-capacity output during the last years in Latvia is relatively small. So the output gap as explanatory variable was not used.

The source data for the model is data provided by Bank of Latvia and the Central Statistical Bureau of Latvia. All series are in 2000 year prices. For the estimation of the investment function, the method employed was that of Least Squares (LS).

As it was mentioned above the significant fall of FDI happened in 2001. To eliminate the influence of this shock, the value of “Hansabank group” arrangement (approximately 100 mln. LVL) was not taken into account in FDI data for investment model (2) estimation.

After the estimation of the model and removing all statistically insignificant variables the final investment model equation can be represented as follows:

$$I_t = \alpha + \beta_1 F_t + \beta_2 F_{t-1} + \beta_3 I_{t-3} + \beta_4 I_{t-4} + \beta_5 G_{t-3} + \beta_6 G_{t-4} + dummy + \varepsilon_t \quad (3)$$

Also the dummy variable for the period of first and second quarter of 2004 was introduced to the model to eliminate the shock influence of EU enlargement process on investment in Latvia.

The results of regression equation (3) for Latvia are shown in table 1.

**Table 1**

**Estimates of the Total Investment Model**

Dependent Variable: total investment,  $I$

Method: Least Squares

Sample(adjusted): 1996:2 2004:4

Included observations: 35 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
$\alpha$	-2.413	0.487	-4.954	0.000
$F$	-0.315	0.178	-1.771	0.088
$F_{t-1}$	-0.492	0.168	-2.927	0.007
$I_{t-3}$	0.183	0.107	1.708	0.099
$I_{t-4}$	0.425	0.123	3.458	0.002
$G_{t-3}$	1.302	0.346	3.762	0.001
$G_{t-4}$	1.225	0.347	3.526	0.002
<i>dummy variable</i>	0.067	0.018	3.675	0.001
Adjusted R-squared	0.876			
S.E. of regression	0.022			
Durbin-Watson stat	1.902			

As we see from table 1 presented equation (3) explains a high percentage of the variation in investment and all coefficients are reasonable and statistically significant (at least at 10 per cent level).

The coefficient for long-term CI or CO effect testing is:

$$\hat{\beta}_{LT} = \frac{\sum_{j=1}^2 \hat{\beta}_j}{1 - \sum_{j=3}^4 \hat{\beta}_j} \quad (4)$$

The criteria used to determine the CO/CI effect is the value and significance of coefficient  $\hat{\beta}_{LT}$ . There are three possibilities:

1. With a Wald test it is not possible to reject the hypothesis that  $\hat{\beta}_{LT} = 1$ . This means that in the long run an increase in FDI of one lat (or, more precisely, of one percentage point of GDP) becomes one lat of additional total investment (or investment amounting to one percentage point of GDP).
2. Consider now the case in which the null  $\hat{\beta}_{LT} = 1$  is rejected and  $\hat{\beta}_{LT} > 1$ . This is evidence of CI: in the long run, one additional lat of FDI becomes more than one additional lat of total investment.
3. If the null  $\hat{\beta}_{LT} = 1$  is rejected and  $\hat{\beta}_{LT} < 1$ , there is long-run CO: one additional lat of FDI leads to less than a one-lat increase in total investment. In other words, there is displacement of domestic investment by FDI. [1]

How to interpret a result in which  $\hat{\beta}_{LT} \neq 1$ ? If the equality holds, investment by MNEs simply adds one-to-one to investment by domestic firms, and there are no macroeconomic externalities stemming from FDI. If the long-term effect of FDI is to produce CI, long-term macroeconomic externalities are positive. And evidence for CO implies that FDI has negative long-term externalities on investment. [1]

The Wald test results of  $\hat{\beta}_{LT}$  coefficient for our regression model are showed in table 2.

**Table 2**

<b>Wald Test Results for <math>\hat{\beta}_{LT}</math> coefficient</b>			
Test Statistic	Value	Df	Probability
F-statistic	37.105	(1, 27)	0.000
Chi-square	37.105	1	0.000
<b>Null Hypothesis Summary:</b>			
Normalized Restriction (= 0)		Value	Std. Err.
$-1 + (\beta_1 + \beta_2)/(1 - (\beta_3 + \beta_4))$		-3.051	0.501

As we see from table 2  $\hat{\beta}_{LT}$  coefficient is significantly different from one. The coefficient value is negative (-2.051) what is the evidence of CO long-term effect of FDI on investment in Latvia.

It is very important to note, that the analysis of FDI CI/CO effect using total investment model (2) is crucially dependent on FDI being exogenous to the variables determining investment (here, the growth rate of GDP with respective time lags). In order to test for the exogeneity of FDI, the regression with FDI as the dependent variable and the growth rate with one-, two-, three- and four-quarter lags as the explanatory variables was tested. The two equations estimated were as follows:

$$F_t = \delta + \gamma_1 G_{t-1} + \gamma_2 G_{t-2} + \gamma_3 G_{t-3} + \gamma_4 G_{t-4} + u_t \quad (5)$$

$$F_t = \delta + \gamma_1 G_{t-1} + \gamma_2 G_{t-2} + \gamma_3 G_{t-3} + \gamma_4 G_{t-4} + \gamma_5 F_{t-1} + \gamma_6 F_{t-2} + \gamma_7 F_{t-3} + \gamma_8 F_{t-4} + u_t \quad (6)$$

These two models were estimated with data for 1995 – 2004 using LS method. The results of estimation are presented in table 3.



Table 3

## Regression estimations with FDI as a dependent variable and lagged growth as explanatory variable

Variable	P-values of coefficients in equation (5)	P-values of coefficients in equation (6)
$G_{t-1}$	0.548	0.578
$G_{t-2}$	0.850	0.462
$G_{t-3}$	0.481	0.205
$G_{t-4}$	0.445	0.119
Adjusted R <sup>2</sup>	-0.066	0.105

As we can see from table 3, the estimated coefficients of  $G_{t-1}$ ,  $G_{t-2}$ ,  $G_{t-3}$  and  $G_{t-4}$  are not statistically significant. Adjusted  $R$  squares of estimated equations are low. So it is possible to conclude that the variables explaining domestic investment (past growth) do not explain FDI in Latvia. Therefore including of FDI as an exogenous variable in the equations for total investment is justified.

## CONCLUSIONS

The econometric analysis of the total investment function for the period 1995 – 2004 conducted in this paper demonstrates the evidence of the crowding out (CO) influence of FDI on domestic investment in Latvia. CO effect means that FDI displace domestic investment in Latvia i.e. one additional lat of FDI inflow in Latvian economy leads to less than a one-lat increase in total investment. However it should be noted that due to the relatively short times series data available the values of total investment function coefficients for Latvia estimated in this paper should be interpreted carefully.

One of the reasons of CO effect can be the relatively low FDI intensity in Latvia over the last 10 years. It should be obvious that low FDI inflows can not ensure any significant CI effect.

The second reason of CO effect can be the peculiarities of FDI distribution in Latvia which, as it was mentioned above, pretty precisely corresponds to the sectoral distribution of total investment. The FDI inflows in Latvia are oriented generally to the most dynamic sectors of the national economy. Some of these sectors *de jure* or *de facto* are monopolized or are oligopolies (gas supply, telecommunication, retail sale of fuel, metal industry and others). In other sectors of foreign investor interest operate plenty of domestic firms (banking and insurance sector, real estate, wholesale trade and other services). And in many cases the firms with foreign capital simply displace or take over the domestic firms which are not enough competitive. This is especially relevant for Latvian economy joining the EU. Thus FDI inflow in Latvia rarely stimulate the domestic firms to invest more to increase their competitiveness. In some cases acquisitions, when foreign investor acquires control in a domestic firm to enter the local market and does nothing to improve its capacity, do not lead to significant increase in physical capital. Foreign investors are not active in less developed sectors of Latvian economy where FDI inflow could be a significant incentive for growth and can ensure the crowding in effect on investment of domestic firms.

The main conclusion from the analysis undertaken in this paper is that the positive influence of FDI on domestic investment processes in Latvia is not assured. The question of maximization of FDI contribution to total investment is a policy question. The national investment policy should focus on improving the investment climate for all kinds of capital, domestic as well as foreign. Today the primary aim is to find the new incentives for FDI inflow in the less developed industrial sectors of Latvian economy where the foreign investors can contribute new technologies, introduce new products and stimulate the activity of domestic firms ensuring the CI investment effect.

## References

1. Agosin M.R., Mayer R. Foreign investment in developing countries: does it crowd in domestic investment? // United Nations (UN) Conference on Trade and Development (UNCTAD), 2000. [http://www.unctad.org/en/docs/dp\\_146.en.pdf](http://www.unctad.org/en/docs/dp_146.en.pdf)
2. Buckley A. International Investment: value creation and appraisal, a real options approach. First edition, Handshojkskolens Forlag, Copenhagen, 1998
3. Bosworth B. P., Collins S.M. Capital Flows to Developing Economies: Implications for Saving and Investment. Brookings Papers on Economic Activity: 1, Brookings Institution, 1999, pp. 143-69.
4. Desai M.A., Foley C.F., Hines Jr. J.R. Foreign Direct Investment and Domestic Economic Activity. November 2004. [www.ncaer.org/Upload/Event/28/MDesai.pdf](http://www.ncaer.org/Upload/Event/28/MDesai.pdf)
5. Ethier W. J. Modern International Economics. Second edition, WW Norton and Company, New York, 1995
6. Hecht Y., Razin A., Shinar N.G. Interactions between capital inflows and domestic investment: Israel and developing countries. [www.bankisrael.gov.il/deptdata/mehkar/iser/04/iser\\_1.pdf](http://www.bankisrael.gov.il/deptdata/mehkar/iser/04/iser_1.pdf)
7. Loungani P., Razin A. How Beneficial Is Foreign Direct Investment for Developing Countries? // Finance and Development. A quarterly magazine of the International Monetary Fund. June 2001, Volume 38, Number 2. <http://www.imf.org/external/pubs/ft/fandd/2001/06/loungani.htm>
8. Schaffer R. International Business Law and Its Environment. Third edition, West Publishing company, Minneapolis, 1996
9. Soberston B. and Reed G. International Economics, Third edition, Macmillan, London, 1994
10. Stikuts D. Latvia`s Potential Output – Using Production Function and HP-filter. Acta Universitatis Latviensis. Volume 677. Economics and Management. University of Latvia. 2004, pp. 372-382.
11. Stikuts D. Measuring Output GAP in Latvia. Bank of Latvia. Working Paper 2/2003. [http://www.bank.lv/images/img\\_lb/izdevumi/english/citas/Measuring\\_Output\\_Gap\\_in\\_Latvia.pdf](http://www.bank.lv/images/img_lb/izdevumi/english/citas/Measuring_Output_Gap_in_Latvia.pdf)
12. Ziņojums par Latvijas tautsaimniecības attīstību. Latvijas Republikas Ekonomikas ministrija. 2005.gada jūnijs.