IMPACT OF FOREIGN INVESTMENT INCOME ON EXTERNAL POSITIONS OF THE BALTIC COUNTRIES

ВПЛИВ ДОХОДУ ВІД ІНОЗЕМНИХ ІНВЕСТИЦІЙ НА ЗОВНІШНІ ПОЗИЦІЇ КРАЇН БАЛТІЇ

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This article assesses the impact of various types of investments, such as direct, portfolio and others, on the economic well-being of the Baltic countries in the period 1999-2019 using various approaches to assessing financial stability. This study shows that foreign investment occupies a significant place in Estonia, Latvia and Lithuania. It should be noted that the analysis of financial stability has shown that these countries depend on the inflow of investment into the country. This is confirmed by the fact that countries have a negative international investment position and are net borrowers in relation to the world. Using different approaches to assessing financial stability, a vector autoregression was constructed, which proves that in countries there is a relationship between external public debt and different types of investment. This work also shows the impact of different investment flows on public debt and investment coverage ratios exported from the Baltic States over the period under review. The investment coverage ratio showed that most investments are covered in Estonia and the smallest in Latvia.
Key words: *external debt, international investment position, foreign investment income, gross domestic product.*

В статье оценивается влияние различных типов инвестиций, таких как прямые, портфельные и другие, на экономическое благо-состояние стран Балтии в период 1999-2019 годов. Это исследование позволяет отметить, что иностранные инвестиции занимают значительное место в Эстонии, Латвии и Литве. Следует отметить, что, проанализировав финансовую стабильность, было показано, что эти страны зависят от притока инвестиций в страну. Это подтверждается тем фактом, что страны имеют негативную международную инвестиционную позицию и являются чистыми заемщиками по отношению ко всему миру. С помощью различных подходов к оценке финансовой устойчивости была построена векторная авторегрессия, которая доказывает, что в странах существует взаимосвязь между внешним государственным долгом и различными видами инвестиций. Работа также показывает влияние различных инвестиционных потоков на государственный долг и коэффициенты покрытия инвестиций, которые экспортировались из стран Балтии за весь рассматриваемый период. Коэффициент покрытия инвестиций показал, что большая часть инвестиций покрывается в Эстонии, а наименьшая – в Латвии.

Ключевые слова: *внешний долг, международная инвестиционная позиция, доход от иностранных инвестиций, валовой внутренний продукт.*

У цій статті оцінюється вплив різних видів інвестицій, таких як прямі, портфельні та інші, на економічний добробут країн Балтії в період 1999-2019 років. Ці країни були обрані для аналізу, оскільки вони є прикладом для інших пострадянських країн, які в даний час є членами Європейського Союзу, вдосконавши грошово-кредитну політику, а також провели реформи, що сприяють розвитку інвестиційного клімату. Це дослідження дозволяє відзначити, що іноземні інвестиції посідають значне місце в Естонії, Латвії та Литві. Слід зазначити, що, проаналізувавши фінансову стабільність, було показано, що ці країни залежать від припливу інвестицій в країну. Це підтверджується тим фактом, що країни мають негативну міжнародну інвестиційну позицію і є чистими позичальниками по відношенню до всього світу. За допомогою різних підходів до оцінки фінансової стабільності була побудована векторна авторегресія, котра доводить, що в країнах існує взаємозв'язок між зовнішнім державним боргом та різними видами інвестицій. Робота також показує вплив різних інвестиційних потоків на державний борг та коефіцієнти покриття інвестицій, які експортувались з країн Балтії за весь розглянутий період. Коефіцієнт покриття інвестицій показав, що більша частина інвестицій покривається в Естонії, а найменша – в Латвії. Країни належать до групи країн з низькою стійкістю до фінансових потрясінь, таких як кризи, тому політика повинна бути спрямована на створення "подушок безпеки" для країн, а саме резервів. Важливо зазначити, що в Естонії до іноземних інвесторів ставляться так само, як до внутрішніх інвесторів, а субсидії Європейського Союзу, наприклад, однаково доступні як іноземним, так і вітчизняним компаніям. Вигідне та сприятливе для бізнесу середовище Естонії залучило велику кількість іноземних інвесторів та великих компаній. В Естонії високі доходи приносять інвестиції у виробничий та фінансовий сектори. Що стосується Латвії, інвестиції у фінансовий сектор, оптову та роздрібну торгівлю є найвигіднішими, а виробничий сектор на останньому місці.Не мало важливим є те, що в Латвії, Литві та Естонії необхідно провести модернізацію промислового комплексу для того, щоб стати експортоорієнтованої країною, таким чином, вони зможуть стати провідними країнами в Європейському Союзі з експорту. Слід зазначити, що вигідне географічне розташування таке як наявність портів і близькість до країн Європи допоможуть прискорити цей процес.
Ключові слова: *зовнішній борг, міжнародна інвестиційна позиція, дохід від іноземних інвестицій, валовий внутрішній продукт.*

Introduction. The development of investment relations between different countries of the world tends to constant changes and has corresponding accompanying factors that can both positively and negatively affect the country's economy. Economic and investment positions of countries. Regarding the positive factors contributing to the development of technological structure in the country, modernization of production, improvement of export positions of countries, increase in the number of jobs. In the modern world, an important role is played by the inflow and outflow of direct investment.

The investments affect absolutely all spheres of economy and the possibility of growth of economic productivity of the country. It is important to note that they affect the employment and income of the population. For example, suppose that investment in agricultural production is reduced, thus decreased incomes and increasing the unemployment of the environment for agricultural workers. This can lead to lower demand for goods and services produced in other areas.

This article examines the impact of various forms of investment inflows such as direct, portfolio and

other investments on investment income and external debt liabilities among countries such as Estonia, Latvia and Lithuania. These countries were chosen for analysis because they are a good example for other post-Soviet countries, which are currently members of the European Union and have been able to improve their monetary policy, as well as carry out reforms that contribute to the development of the investment climate.

Literature review. An article by Yakubovsky, Rodionova, Derkach investigated the impact of foreign investment on the formation of foreign economic positions of nine countries with emerging market economies in Central and Eastern Europe. The construction of vector autoregression models and the implementation of the Granger causality tests show the negative impact of income on foreign investment on the formation of external debt. Countries are grouped according to the degree of their dependence on external financing based on an analysis of the coverage ratio of foreign investments, which is calculated as the share of direct foreign, portfolio and other investment income repatriated by investors in foreign capital [1].

In Ari Coco's article, data on the impact of foreign direct investment in the host country were examined. The focus of the discussion was on technology transfer and dissemination from other countries. The preliminary conclusion of the study is that FDI can contribute to economic development, contributing to increased productivity and exports in the host countries. However, the exact nature of the relationship between foreign multinationals and the host economy varies between industries and countries. It has been argued that characteristics such as the host country's industry and political environment are important determinants of FDI [2].

Rodionova T. A. introduced an indicator of the share of total income exported by foreign investors in the corresponding cumulative receipts of the financial account, which helps to assess the percentage of the payment of investment income for various types of investments that exceeds the received investments [3].

Hypotheses, methodology and data. For each country, it is important to control what can affect the increase in external public debt. In these studies, various types of investments that may have mutual causality or one-sided causality with external debt were considered. In order to find out the mutual causality between the external public debt and the income of direct, portfolio and other investments of Estonia, Latvia and Lithuania, the Granger test is evaluated:

$$Inc_t = \alpha_2 + \sum_{i=1}^{p} \beta_{2i} ED_{t-i} + \sum_{i=1}^{p} \gamma_{2i} Inc_{t-i} + \varepsilon_{2t} =$$
$$= \alpha_1 + \sum_{i=1}^{p} \beta_{1i} Inc_{t-i} + \sum_{i=1}^{p} \gamma_{1i} ED_{t-i} + \varepsilon_{1t} \qquad (1)$$

where ED – external debt, Inc. – income for each type of investment (direct, portfolio, other) and term of

error; α permanent member; β and γ denote the coefficients to be estimated, p is the selected order of lag. The null hypothesis of Granger causality from Inc to ED and from ED to Inc are $\beta_{1i} = 0$ and $\gamma_{2i} = 0$, respectively.

To construct a vector autoregression for the Baltic States – Latvia, Lithuania, Estonia, the following indicators were taken: where external debt is FDI income, direct investment, portfolio income, other income.

The data were taken from 1999–2019 according to the information obtained from the statistics of the World Bank and balance of payments from the base of the International Monetary Fund. This test will provide a more accurate analysis of the inflow of investment in countries and the impact on the growth of external debt.

For each country, it is also important to analyze what may affect the increase in public debt. In these studies, by analogy with external debt, various types of investments were considered that may have mutual causality or one-sided causality with public debt. To find out the mutual causal relationship between public debt and direct, portfolio and other investment income from Estonia, Latvia and Lithuania, the Granger test is evaluated by the formula:

$$Inc_t = \alpha_2 + \sum_{i=1}^{p} \beta_{2i} GD_{t-i} + \sum_{i=1}^{p} \gamma_{2i} Inc_{t-i} + \varepsilon_{2t} =$$
$$= \alpha_1 + \sum_{i=1}^{p} \beta_{1i} Inc_{t-i} + \sum_{i=1}^{p} \gamma_{1i} GD_{t-i} + \varepsilon_{1t} \qquad (2)$$

where GD – government debt, Inc. – income for each type of investment (direct, portfolio, other) and term of error; α – permanent member; β and γ denote the coefficients to be estimated, p – the selected order of lag. The null hypothesis of the Granger causality from Inc to GD and from GD to Inc are $\beta_{1i} = 0$ and $\gamma_{2i} = 0$, respectively.

To build vector autoregression for the Baltic countries – Latvia, Lithuania, Estonia – the following indicators were taken: government debt, foreign direct investment income, direct investment, portfolio income, other income. Data were taken from 1999–2019 according to the information obtained from the statistics of the World Bank and the balance of payments from the base of the International Monetary Fund. This test will provide a more accurate analysis of the influx of investment in countries and the impact on the growth of government debt.

Also, the coverage ratio of investments was calculated in the work, this ratio means the share of total income exported by foreign investors in the corresponding cumulative financial account receipts:

$$Cover = \frac{\sum INC\alpha_t^x}{\sum xl_t} \qquad (3)$$

Where Cover is the coverage ratio of foreign investments of type x (FDI, portfolio or other investments) for the period 1999–2019.

This coefficient is important because it reflects how stable the country's economy is. If the profitability

ratios are too high, this may indicate that financial shocks are occurring in the country.

Result. There is a following approach to assessing financial soundness based on a net investment position. If the ratio of net investment position to GDP is less than 36%, then these countries can be considered as countries with high level of financial resilience to different financial crises. There is another approach based on the value of external debt instruments and securities to GDP. If the external debt value ratio is less than 48%, countries may be considered financially resilient to financial turmoil (Table 1).

Therefore, based on Table 1 and using the first approach, which estimates the ratio of net international investment position to GDP, in the time period 2000, 2009, 2019, the Baltic countries have a strong dependence on foreign capital. According to the data, the largest dependence on foreign capital is observed in 2009, in Estonia (-811%), in Latvia (-894%), in Lithuania (-639%), this trend is observed due to the global financial crisis, so period of time countries needed external financing. Already by 2019, the positions in the countries have improved and relative to the Baltic countries, in Estonia, the economy is with a low degree of financial stability, but compared with Latvia and Lithuania is less dependent on foreign financing (-198%), when this indicator in Latvia is (- 432%).

Using the second approach, which estimates the value of external debt instruments and securities relative to GDP, it should be noted here that the Baltic countries in 2000, 2009 2019 had a ratio of the value of external debt instruments and securities in excess of 80%, are countries with a high level of dependence on external financing. However, it should be noted that this approach to assessing the stability of national financial systems does not take into account the possibility of rapid devaluation of national currencies, which in the short term can significantly reduce the value of GDP in foreign currency, which will entail an increase in the ratio of the value of foreign debt instruments and securities GDP.

The conducted Granger causality test provides an opportunity for a more reliable analysis of the impact of capital inflows on the development of the economies of the studied countries. The correlation between the income from direct, portfolio, other investments and the growth of the external debt of Estonia, Latvia and Lithuania is presented in Table 2.

According to the Granger causality test, then for Lithuania's revenues from direct investment and portfolio investment have a greater impact, which influences the change in external public debt. All other variables are independent of each other. For Latvia during 1999–2019, the increase in the country's external

Table 1

Macroeconomic imbalances, in % GDP

Country	Net International Investment Position			External debt instruments and securities		
	2000	2009	2019	2000	2009	2019
Latvia	-238	-894	-432	116	145	115
Lithuania	-317	-639	-297	92,4	87	78
Estonia	-487	-811	-198	110	99	73

Source: the ECB (2020), the IMF (2020), the World Bank (2020). [4-6]

Table 2

Granger causality test for external debt growth and all types of investment income flows

Country	Indicators	Lags			
Lithuania		External debt	FDI income	Portfolio income	Other income
	External debt		0.77 (0.94)	2,38 (0.12)	0,51 (0.77)
	FDI income	21.43 (0.00)[a]			
	Portfolio income	3.5 (0.06)[a]			
	Other income	2.65 (0.26)			
Latvia		External debt	FDI income	Portfolio income	Other income
	External debt		5.35 (0.37)	0.68 (0.98)	0.25 (0.87)
	FDI income	95.07 (0.0000)[a]			
	Portfolio income	18.04 (0.0029)			
	Other income	11.96 (0.0025)			
Estonia		External debt	FDI income	Portfolio income	Other income
	External debt		5.78 (0.05)[a]	3.77 (0.15)	8.59 (0.01)[a]
	FDI income	13.50 (0.00)[a]			
	Portfolio income	6.60 (0.03)			
	Other income	6.52 (0.03)[a]			

Note: ED denotes external debt growth. Behind the country name the sample range is listed in parentheses. The numbers in the parentheses beside the Wald statistics are the P-values: a, b, c represent the 1%, 5%, and 10% significance levels, respectively.

debt was influenced by such indicators as direct, portfolio and other incomes, but the external debt did not affect them. For Estonia during 1999–2019, there is mutual causality between direct income and external debt, which means that they affect each other. The same trend is observed in other income and external debt, namely mutual causality and they affect each other. Portfolio investment is one-sided and contributes to an increase in external debt.

The Granger causality test provides an opportunity for a more reliable analysis of the country's influence on economic development. The ratio between income and direct investment and the growth of government debt of Estonia, Latvia and Lithuania in Table 3.

According to the Granger causality test, for Estonia, direct investment income is more influential, which affects the change in government debt, all types of investments are independent of each other. However, it is important to note that changes in government debt affect direct, portfolio and other investments. For Latvia during 1999–2019, the increase or decrease in government debt was not affected by investments, and also public debt did not have an impact on changes in these values. This trend is justified by the fact that, compared with other Baltic countries, less investment was sent to Latvia. For

Lithuania, during 1999–2019, revenues from direct and portfolio investments have an impact on the reduction of government debt. However, a change in government debt affects only other investments.

Coefficients of coverage of foreign investment as a share of direct foreign, portfolio and other investment income repatriated by investors in foreign capital received by the country are presented in Table 4.

Table 4 presents coverage coefficients calculated for the Baltic countries. In absolute terms, Estonia for the period 1999–2019 received the largest amount of foreign capital. On the contrary, Latvia received the least amount of foreign capital. Regarding the ratio of total income to total investment, over the past 20 years, this indicator amounted to 70% in Estonia, 56% in Lithuania, and 36% in Latvia. If analyze each investment category, then in the investment structure, in terms of investment coverage ratio in Estonia direct investments are the most significant 94%, in Latvia the situation is similar and direct investments prevail 84%, in Lithuania the same situation and direct investments are 88%. With regard to the question of where most of their investments are invested by investors in the Baltic countries. Firstly, most of the investment comes from real estate because it is highly liquid. It is important to note that in Estonia, foreign investors are

Table 3

Granger causality test for government debt growth and all types of investment income flows

Country	Indicators	Lags			
		Govermernt debt	FDI income	Portfolio income	Other income
Estonia	Govermernt debt		9.7(0.0018)[a]	7.67 (0.0056)	7.64 (0.0057)
	FDI income	1.81 (0.17)[a]			
	Portfolio income	0.89 (0.76)			
	Other income	4,26 (0,03)[a]			
Latvia		Govermernt debt	FDI income	Portfolio income	Other income
	Govermernt debt		0.16 (0.43)	0.39 (0.53)	0.34 (0.55)
	FDI income	0.22 (0.63)			
	Portfolio income	0.06 (0.93)			
	Other income	0.19 (0.66)			
Lithuania		Govermernt debt	FDI income	Portfolio income	Other income
	Goverment debt		8.65 (0.33)	1.23 (0.26)	7.18 (0.00)[a]
	FDI income	9.39 (0.00)[a]			
	Portfolio income	3.47 (0.06)[a]			
	Other income	0.35 (0.55)			

Note: GD denotes government debt growth. Behind the country name the sample range is listed in parentheses. The numbers in the parentheses beside the Wald statistics are the P-values: a, b, c represent the 1%, 5%, and 10% significance levels, respectively.

Table 4

Coefficients of coverage of foreign investments, 1999–2019

Country	Coefficients of coverage of foreign investments, in %			In million USD		In %
	for FDI	for Pi	for OI	Total capital inflow	Total income inflow	Coefficients of coverage
Latvia	84%	30%	18%	25 331.02	69 510.81	36%
Lithuania	88%	55%	27%	30 670.93	54 426.41	56%
Estonia	94%	33%	30%	34 098.03	48 341.89	70%

Source: ECB (2020), IMF (2020), World Bank (2020) [4–6]

Table 5

Coefficients of coverage of foreign investments, 1999–2019

Country	Coefficients of coverage of foreign investments, in %			In million USD		In %
	for FDI	for Pi	for OI	Total capital	Total income inflow	Coefficients of coverage
Latvia	38%	17%	14%	5892.465	32 041.99	18%
Lithuania	16%	14%	13%	4660.661	33 426.01	13.94%
Estonia	63%	22%	12%	12972.93	37 218.75	34.86%

Source: the ECB (2020), the IMF (2020), the World Bank (2020) [4–6]

treated in the same way as domestic investors, and European Union subsidies, for example, are equally available to both foreign and domestic companies. Estonia's profitable and business-friendly environment has attracted a large number of foreign investors and large companies. In Estonia, high returns are generated by investments in the manufacturing and financial sectors. As for Latvia, investments in the financial sector, wholesale and retail trade are the most profitable, with the manufacturing sector in the last place.

Coefficients of coverage of foreign investments as a share of direct foreign, portfolio and other investment income exported by investors of Latvia, Lithuania and Estonia to other exported to other countries are presented in Table 5.

According to Table 5, Estonia received the largest amount of capital in the period 1999–2019, which in turn amounted to 37 318 million USD. The share of exported revenues in the aggregate amounted to 34%, which is the highest indicator among the Baltic countries. Regarding the direct investment coverage ratio, it is 63%, portfolio investment is 22%, but other investments are the smallest at 12%. In the second place, after Estonia, Latvia comes with 33 426 million USD. However, the share of exported revenues in the aggregate amounted to 13% and is the smallest among the Baltic countries. In Lithuania, cumulative accumulations in the period 1999–2019 amounted to 32 041 million USD, and part of the exported accumulation amounted to 18%. Most of all, Latvian, Lithuanian and Estonian investors invest their money in IT projects, the development of technological industries and the creation of joint ventures.

Conclusions. This study makes it possible to note that foreign investment occupies a significant place in Estonia, Latvia and Lithuania. It should be noted that, after analyzing financial stability, it was shown that these countries are dependent on the inflow of investments into the country. This is confirmed by the fact that countries have a negative international investment position and are net borrowers in relation to the whole world.

The Baltic countries are dependent on external financing, but Latvia, Lithuania and Estonia are pursuing policies that are aimed at creating attractive investment countries and therefore creating a loyal environment for investors. However, the country's data are unstable to financial turmoil. Constructing a vector autoregression shows that Lithuanian direct and portfolio returns influence the change in external debt. In the case of Latvia, direct, portfolio and other income affect the change in external debt. In the case of Latvia, a change in the external public debt indicator entails an increase in income from direct, portfolio and other investments. In the case of Estonia, the interdependence between direct incomes and other incomes in relation to external debt, and the accumulation of external debt affects the growth of direct investment income.

Summing up, the coverage ratios of foreign investments received by Latvia, Lithuania and Estonia during 1999–2019, we can conclude that in absolute terms, most send other investments to Latvia, with their coverage ratio being the smallest, and is 36%. As for Lithuania, there is less investment in this country than in Latvia and the direct investment coverage ratio for the years 1999–2019 is 87%, portfolio investment 55.07%, other investments 27%. Of all the countries represented in Estonia, the smallest amount of investment is received and the coverage ratio over the 20 years is the highest at 70%.

To summarize, determine the coverage ratios of investments that were exported from the Baltic States. In the period 1999–2019, Estonian investors had the highest number of investments from all countries represented (37 218 million USD), with a coverage ratio of 34%. In Lithuania, the direct investment coverage ratio for 1999–2019 is 16%, portfolio investment 13%, other investments 13.04%. As for Latvia, if we estimate the share of total income for the period 1999–2019, this indicator is 18%, which is much less than the share of the return on investment in Latvia. In absolute terms, the largest share of other investments in Latvia (14 34 million USD over 20 years) is covered by at least 14%.

The Baltic countries have passed the difficult path of reform and today can serve as an example for the post-soviet countries, as an example, European integration and the positive consequences from it. It is important to note that despite the fact that countries are heavily dependent on foreign investment, this is not an obstacle to their development, and government policy, on the contrary, is aimed at creating favorable

conditions for investors. However, the economies of these countries have a problem that indicates that Latvia, Lithuania and Estonia are not resistant to financial shocks, therefore it is necessary to increase the airbag, but at the same time there must be confidence in the stability of inflation and the foreign exchange market.

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