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COMPARATIVE ANALYSIS OF FINANCIAL-ECONOMIC INDICATORS AND THE DYNAMICS OF EXTERNAL SECTORS OF ESTONIA AND DENMARK

Summary. The article is devoted to the analysis of the dynamics of economic and financial indicators of Denmark and Estonia in the period of 2000–2017. On the basis of the data analyses, changes in the international investment positions of the countries are found. The paper presents the results of the econometric studies of the impact of various economic indicators on the dynamics of the current accounts. Based on the experience of the studied countries, recommendations for Ukraine are suggested.

Key words: economic indicators, financial indicators, comparative analysis, balance of payment, international investment position, government debt, Denmark, Estonia, experience for Ukraine.

Introduction and formulation of the problem. Of considerable interest is the behaviour of small countries, which, lacking a sufficient internal natural resource and economic potential, are forced to actively join the system of world economic relations in order to level these shortcomings at the expense of external sources. At the same time, in the world market, they are experiencing intense competitive influence from large industrialized countries, and the pronounced interconnectedness of the subjects of the world economy predetermines their susceptibility to influence not only positive but also negative global processes. Despite this objectively difficult situation, the majority of small countries were able to achieve significant success in ensuring a high level of welfare of their citizens, as well as achieving sustainable positions in key areas of international economic relations. A striking example is Denmark and Estonia, which will be considered in this paper. Recently, when conducting economic research, domestic and foreign scientists have increasingly begun to use comparative analysis. It provides an opportunity not only to assess the economic situation in a particular country and make predictive or recommendation conclusions but also to draw an analogy in the development of the countries studied.

Estonia is considered one of the most stable countries, which has shown a real example of the formation of fiscal policy and the development of small sectors of the economy.

Denmark is a small country in Northern Europe that successfully competes with large markets in Europe and the world.

Consideration and comparison of economic and financial indicators of selected countries in the period of 2000–2017 will allow analysing the dynamics of development of countries in this period, their pre-crisis state, and the results after the crisis recovery. In addition, based on the study, it will be possible to highlight recommendations for Ukraine.

Analysis of recent research and publications. The research of theoretical aspects of comparative analysis and the direct study of the state of economic and financial indicators of countries are carried out by many domestic and foreign scientists, including: Koopmans T., Montais J., Lomachinskaya I. [1], Sydorova Z. [2], Tsigelkova E. In addition to these scientists, the following international organizations are involved in studying and comparing economies of various countries: IMF, World Bank, Eurostat, OECD, etc.

Separation of previously unresolved parts of the common problem. Many countries face such problems as growing budget deficits, high unemployment, and high inflation. However, the assessment of these indicators is objective due to the fact that each of them reflects the economic situation of the country. So with the growth of inflation, we can say that the position of the country is deteriorating. Due to the evidence of estimates, less attention is paid to other macroeconomic indicators, such as the current account. A positive or negative value of this indicator does not give any opportunity to determine the economic condition of a country, but at the same time, the current account certainly affects the ability to achieve external balance and, consequently, the possibility of further economic development of the country. The study of this indicator will allow expanding the knowledge of the impact of various indicators on the current account.

The purpose of the article is to conduct a comparative analysis of economic and financial indicators, to study the dynamics and structure of the balance of payments, the international investment position and the public debt of Denmark and Estonia, identify factors affecting the current account trend, and identify wholesale for Ukraine.

Presentation of the main material of the study. One of the main indicators of the level of economic development of the country is GDP. Today, most of Estonia's GDP comes from services – 68%. The share of industry is less than 29%, and the share of agriculture is less than 3%.

As for Denmark, it is worth noting that GDP growth in recent years has been provoked mainly due to the growth in

private consumption and public investment. The main limiting factors in the growth of industrial production and exports, as well as the investment attractiveness of Denmark, are traditionally high wages (gross) and taxation.

If we compare the GDP indicators of Denmark and Estonia, we can note a significant difference (Fig. 1). Denmark's GDP exceeds Estonia's GDP by 6.9 times as of 2017. However, the dynamics of the indicators of both countries have a similar tendency – growth in the period of 2000–2008, a decline during the crisis in 2009, and only a positive trend after 2010. Based on this, it can be concluded that the world crisis, although it touched countries, they rather quickly took the path of economic recovery.

One of the most influential indicators that affect GDP, consumption, and the economy as a whole, is the unemployment rate (Fig. 2).

Denmark is a country with one of the lowest unemployment rates not only in the EU but also in the world. Thus, in the period of 2000–2017, unemployment did not exceed 7.57% recorded in 2011. The minimum figure is 3.47% in 2008, which is a record low since 1975. As of 2017, the unemployment rate in Denmark was 5.7%, continuing the downward trend since 2011.

The dynamics of unemployment in Estonia have the same wave-like tendency as in Denmark. In 2000, the figure was 14.66%, then it decreased until 2007 and the level of 4.6%,

which is the minimum figure in the period of 2000–2017, unemployment rose again until 2010 with a maximum rate of 16.7%, and in 2017, the unemployment rate fell to 5.8%.

It is also necessary to note that in 2000–2005 the unemployment trends in Estonia and Denmark had opposite directions, and the largest gap in the unemployment rates of countries was observed in the period 2009–2012, which indicates a more stable Danish economy during the crisis.

One of the most important processes in the economy, typical of almost any modern state, is inflation. With inflation, there is an increase in the general price level for goods, accompanied by a decrease in the purchasing power of money.

The dynamics of inflation in Denmark and Estonia has a similar trend. The maximum values in the countries were recorded in 2008 – 10.36% in Estonia and 3.42% in Denmark (Fig. 3). In 2009, there was a sharp decline in inflation, but in the period of 2010–2011 the inflation grew again, preceding the crisis of the Eurozone. After 2011, inflation was declining. The minimum Estonian inflation rate of -0.49% was noted in 2015; in Denmark, the minimum value of 0.25% was reached in 2016. However, in 2017 there was again a jump in inflation, the figures for Estonia and Denmark were 3.24% and 1.15%, respectively. Nevertheless, it is worth noting that inflation is considered to be normal at around 2-3%, thus Denmark keeps inflation below the permissible rate, and Estonia, although it exceeds it, the error is not big.
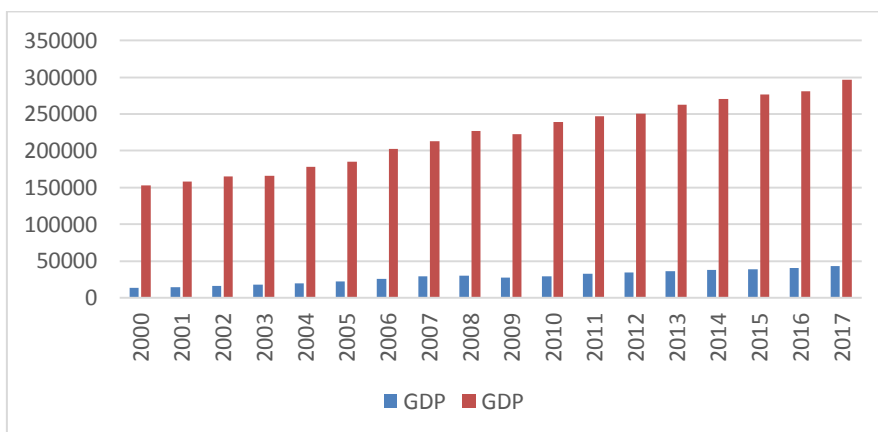

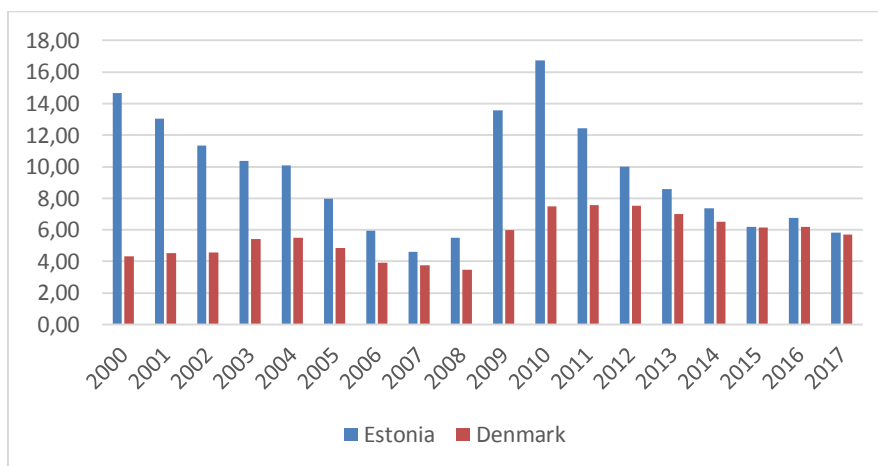**Fig. 1. Gross domestic product, billion USD**

Source: [3]

Fig. 2. Unemployment, %
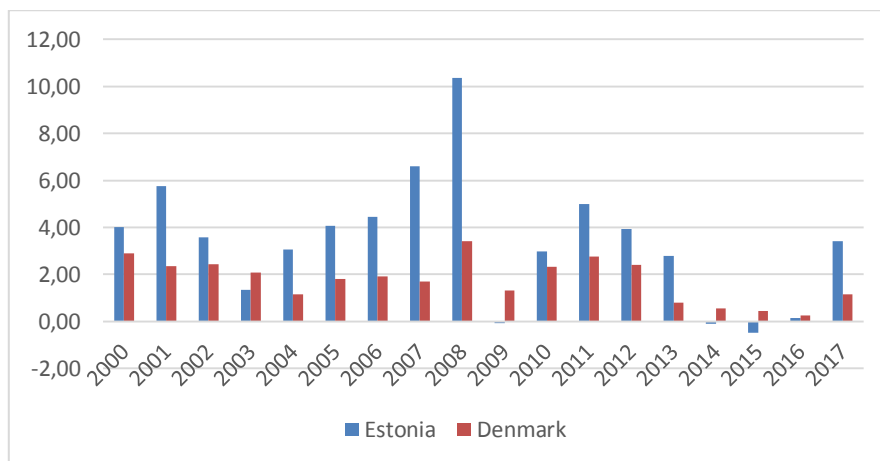
Source: [4]

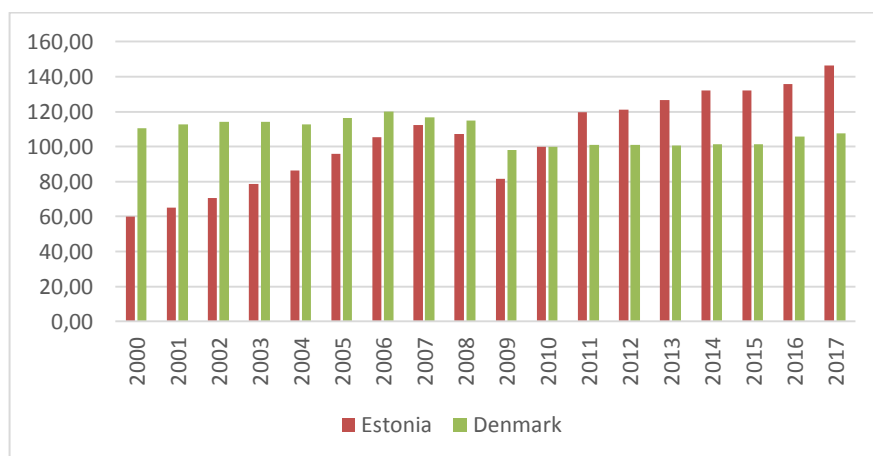**Fig. 3. Inflation, %**

Source: [5]

Fig. 4. Industrial production index, %

Source: [4]

The industrial production index is an indicator of the volume of industrial production in the extractive and manufacturing industries, in the field of energy saving and utilities. Considering the dynamics of this indicator in Denmark for the period of 2000–2017 (Fig. 4), from the base year 2010, it can be concluded that in the period of 2000–2008, the level of industrial production remained almost identical in the range of 110-120%, in 2009 there was a sharp decline to 98.04% (compared to 2010 = 100%). Since 2009, the index has changed in the range of 0.2-2%, more significant growth was observed in 2016 and 2017; however, it has not yet been possible to achieve pre-crisis indicators.

As for Estonia, in the period of 2000–2007 an increase in the index from 59.9% to 112% was observed; in 2008, industrial production decreased, but since 2009 the index has grown again. Thus, in 2017 the figure was 146.56%, becoming the maximum for the analysed period.

The increase in volume was mainly due to an increase in the production of wood products, electronic equipment, food, and metal products.

In addition, it is worth noting that in 2011–2017 the growth rate of the industrial production index in Estonia exceeds that of Denmark.

In addition to maintaining macroeconomic indicators, ensuring financial stability is among the priorities of the economic policies of many countries. This is due to the fact that financial stability contributes to the efficient allocation of economic resources and the distribution of risks and, therefore, stimulates economic activity and increases welfare in the country. In 2001, the IMF introduced the first system of indicators of financial sustainability and in 2004 it was refined and the basic set of indicators was recognized as significant for all countries of the world. Almost from this time, the Central Banks of the leading countries of the world began to create relevant units to analyse and predict the stability of the functioning of banking and financial systems.

To determine the stability of the financial systems of Denmark and Estonia, it is necessary to analyse one of the indicators of the financial stability of the IMF – the ratio of regulatory capital to risk-weighted assets. This SFC measures the capital adequacy of depository institutions and is based on the definitions used in Bazel about the rate of equity. Capital adequacy of depository institutions is the ratio of the bank's own funds (total regulatory capital) to the total risk-weighted assets.

The high values of the capital adequacy ratio in Denmark and Estonia indicate that most of the banks' own funds are in total assets. This indicates a high level of financial sustainability of the banking systems of countries.

123

First of all, the high values of indicators in both countries should be noted. However, in the period of 2000–2017 FSI in Denmark did not differ sharply, so it grew from 16% in 2000 to 21.7% in 2017 (Fig. 5).

As for Estonia, we see that in 2014 there was a sharp jump in the indicator to 35.7% versus 20% in 2013. In the following years, the value of the FSI decreased, but remained at a fairly high level, entrenched at 29.2% in 2017.

The ratio of non-performing loans to total gross loans is designed to identify asset quality problems in the loan portfolio. The ratio of non-performing loans to total gross loans and borrowings is often used as an approximate indicator of asset quality.

An increase in this ratio may indicate deterioration in the quality of the loan portfolio, so a sharp increase in almost half in 2012 in Denmark is due to the onset of the crisis. In 2017, this FSI of Denmark was 2.5% (Fig. 6).

In Estonia, the indicator shows only a positive trend in the period of 2010–2017, thus, it decreased from 5.4% in 2010 to 0.7% in 2017. In comparison with other countries, for example, France – 17% in 2016, the Czech Republic – 14.1% in 2017, this indicator in Denmark and Estonia is much more profitable.

The most important part of the balance of payments is the current account balance. The current account is a key concept of the international economy, showing, on the one hand, the result of the country's interaction with the rest of the world for a certain period of time, and on the other, the balance of domestic investment and savings.

In the period of 2000–2017 Denmark's current account balance was in surplus. The minimum value was recorded in 2000 – 2.26 billion USD, and the maximum value – in 2014 – 31.35 billion USD. In 2017, Denmark's current account balance amounted to 25.34 billion USD, which is

the twelfth in the world's current account balance rating for 2017 (Fig. 7).

In 2000, Estonia closed the current account balance with a deficit of 299 million USD, which continued to grow until 2008 and to -2.2 billion USD. In 2009, there was a sharp jump to a surplus of 525 million USD; however, the indicator began to fall again until 2012. In 2017, the current account amounted to 860 million USD, which is the maximum value for the analysed period and fixes Estonia ranks 40th in terms of the current account balance in the world.

The capital account is intended to characterize the process of real accumulation of fixed and current assets, intangible and financial assets, as well as sources of its financing. It reflects the financing of gross fixed capital formation and changes in inventories, including the redistribution of wealth between sectors of the economy and the rest of the world in the form of capital transfers.

In the period of 2000–2017, the capital account in Estonia was only in surplus, the maximum value was reached in 2011 – 938.4 million USD, after that the indicator decreased until 2014, in 2015 there was again a jump to 470.3 million USD. However, after that a recession followed again and, in 2017, the capital account amounted to 266.6 million USD (Fig. 8).

In Denmark, the dynamics of the capital account indicator shows a wave-like trend, for example, the indicator rose from -11.4 million USD in 2000 to 152.5 million USD in 2002, but then again there was a decline and rise in 2005. From 2006 to 2010, no significant fluctuations were observed, and in 2011 there was a sharp jump to 1.09 billion USD, after which the indicator fell to a record value of -1.06 billion USD in 2015.

Next, consider the dynamics of the financial account in Denmark and Estonia. A surplus on the financial account shows a net decrease in residents' foreign assets and/or an
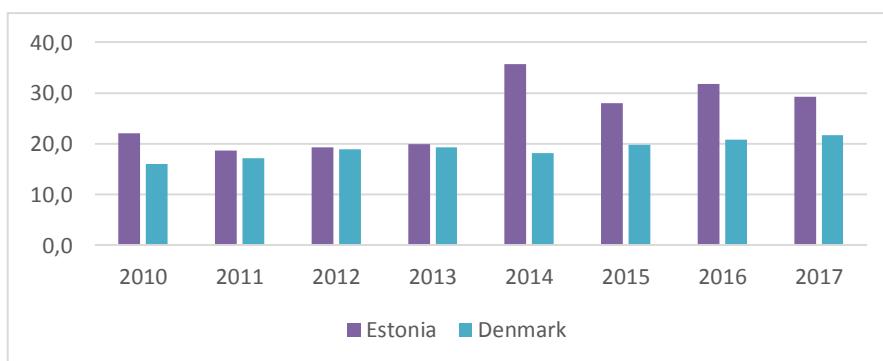

Fig. 5. Regulatory capital to risk-weighted assets, %
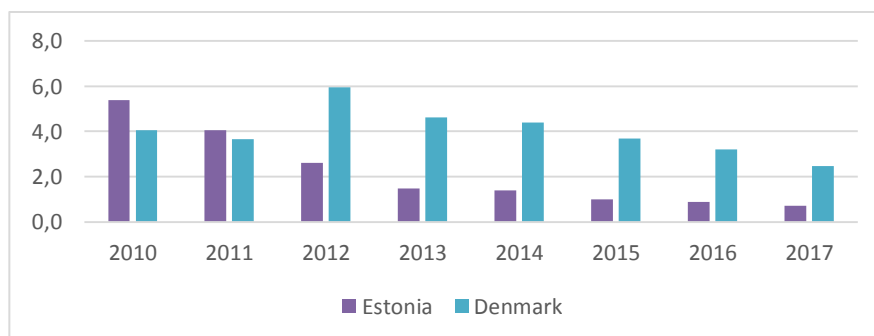
Source: [6]
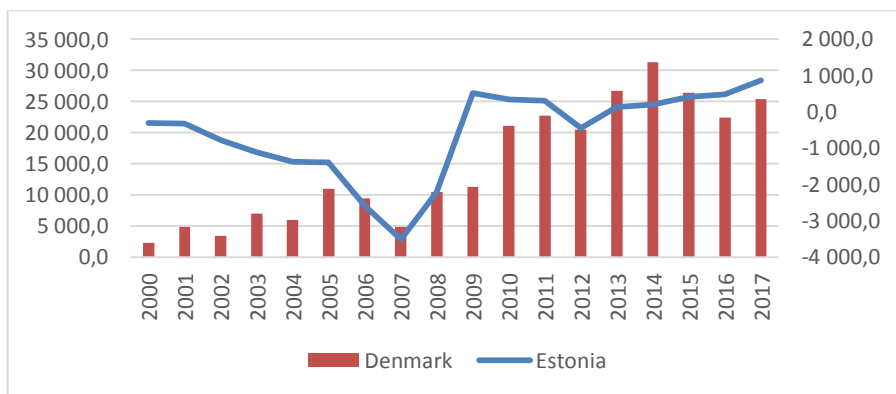

Fig. 6. Non-performing loans to total gross loans, %

Source: [6]

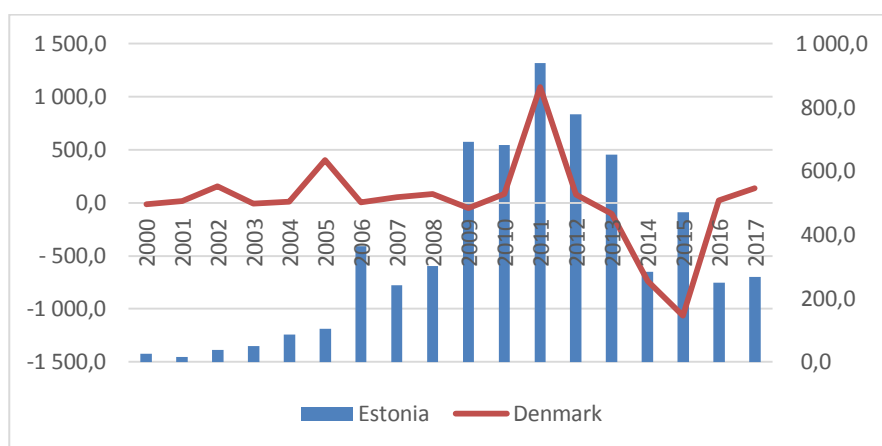**Fig. 7. Current account balance, million USD**

Source: [7]

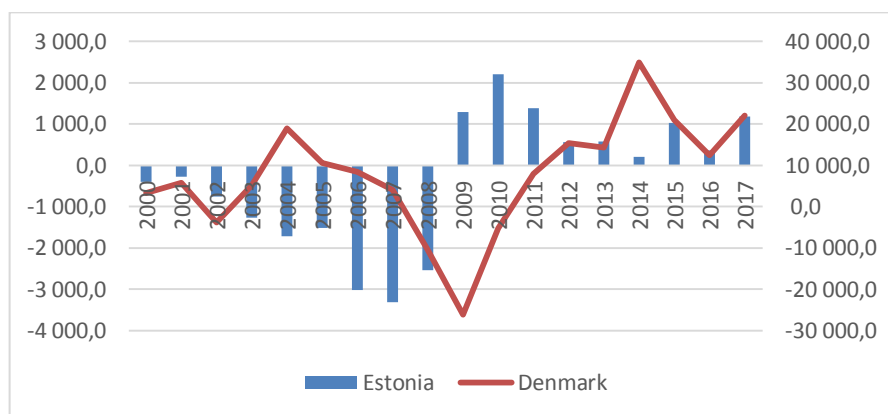**Fig. 8. Capital account, million USD**

Source: [7]

Fig. 9. Financial account, million USD

Source: [7]

increase in their foreign liabilities. The negative balance reflects the net increase in residents 'foreign assets and/or the net decrease in their foreign liabilities.

In the period of 2000–2008, the balance of the financial account of Estonia was negative and had a negative trend. In 2009, there was a sharp increase in the indicator to 1.2 billion USD against -2.5 billion USD in 2008. In 2009–2017, the bal-

ance was positive, although there was a decline in the crisis of 2012 (Fig. 9).

In Denmark in the period of 2000–2002, the balance of the financial account was positive, in 2003 there was a decline, but it was again followed up. The minimum balance value was recorded in 2009 at -26.2 billion USD. In 2012–2017, the balance was positive.

125

Both the balance of payments and the international investment position (IIP) provide useful information for assessing the country's economic relations with the rest of the world. MIP is a statistical report that shows the volume of external financial assets and liabilities of the economy at a certain point. These volumes at this particular point in time are formed as a result of external operations valued at current market value (at current market prices and exchange rates) and the impact of other factors (for example, write-offs and changes in classification).

First of all, it is worth noting that in the period of 2000–2017 Estonia's international investment position was negative, indicating that the country is a net debtor. The minimum values were reached during the years of crises – 2008, 2012–2013 (Fig. 10).

As for Denmark, it can be concluded that in 2000–2004, the country's international investment position was negative; in 2005, a positive value was noted, which, however, was again followed by a decline in 2007–2008. After 2009, there was a sharp rise and positive dynamics persists to this day. In 2017, IIP amounted to $188.1 billion, which makes the country a creditor.

The following will be considered for the analysis of public debt – the result of financial borrowing of the state, carried out to cover the budget deficit, it is equal to the sum of the deficits of previous years, taking into account the deduction of budget surpluses. For a more objective comparison, government debt is considered as a percentage of the gross domestic product.

First of all, it is worth noting that the dynamics of the development of public debt in % of GDP in Denmark in the period of 2000–2017 is almost identical to the dynamics of the average level of public debt of the EU. In the period of 2000–2007, Denmark's national debt in % of GDP decreased from 52.4% in 2000 to 27.3% in 2007. With the onset of the global economic crisis of 2008, the national debt began to grow, reaching a maximum in 2011 at 46.1%. Then the indicator again tended to decrease and, thus, in 2017 it amounted to 36.6% (Fig. 11).

The Estonian public debt indicator in % of GDP, as well as in Denmark, showed a negative trend from 2000 to 2007, decreasing from 5.1% to 3.7%, respectively. From 2008, the indicator grew and reached 6.6% in 2011. In 2012, there was a sharp jump in the indicator to 9.7%, after which the increase was observed until 2014. In the period of 2015–2017, the indicator decreased and, thus, in 2017 was 9%, which is 9.2 times less than the average for the EU.

It should also be noted that the national debts of Denmark and Estonia expressed in % of GDP are among the lowest in the European Union and, in addition, they support the negative dynamics after the 2008 and 2012 crises.

To study the effect of various indicators on the dynamics of the current account, a regression analysis was used based on the use of the following indicators: Y – current account, billion USD; X1 – budget deficit, %; X2 – inflation rate, %; X3 – unemployment, %; X4 – GDP, billion USD.
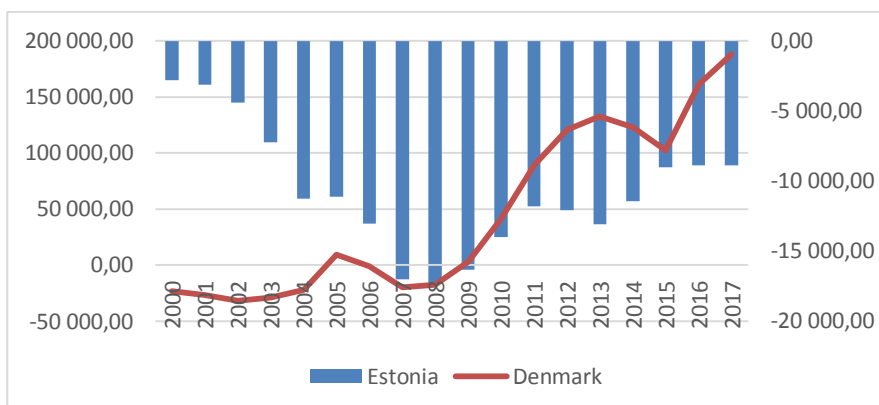

Fig. 10. International investment position, million USD
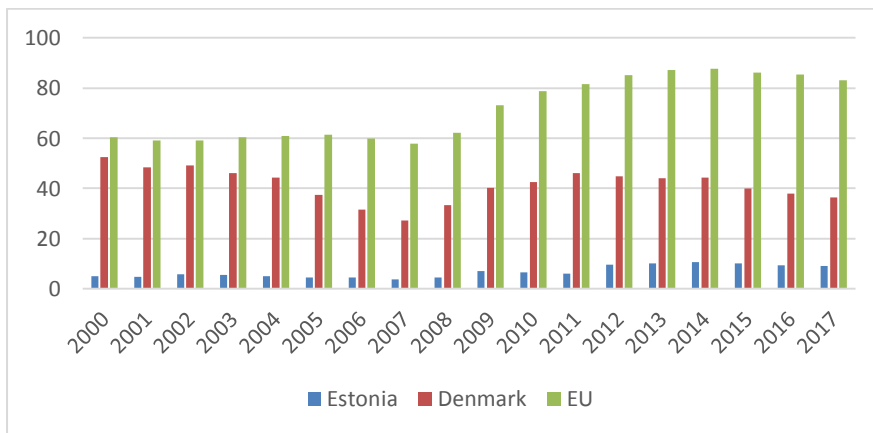
Source: [8]

Fig. 11. Government debt, % of GDP

Source: [9]

For the possibility of a more detailed analysis and obtaining reliable results in the regression model, annual figures were used for 17 years from 2000 to 2017.

The general formula for the two countries is as follows:

$$Y = \beta 1 * X1 + \beta 2 * X2 + \beta 3 * X3 + \beta 4 * X4 \qquad (1)$$

The first to be investigated is the model for Denmark. Compared to Estonia, the country has a more stable positive current account.

The analysis revealed that all indicators have a significant impact on the selected dependent variable in accordance with the coefficient of significance. The coefficient of determination (R-square) is 0.923, the chosen factors explain the dependent variable by 92.3%. This indicates the adequacy of this model. For this model, the t-test value is 2.6. T-statistics of selected independent variables exceed the t-criterion, which indicates that these indicators have a significant impact on the dependent variable – the current account of Denmark. In addition, the value of the Durbin-Watson autocorrelation test in this example is 1.76, that is, close to 2. This indicates the absence of systematic links between residues, i.e. between the deviations of the observed (empirical) values from the theoretically expected (calculated). Thus, the final regression model is as follows:

$$Y = 0.208 * X1 - 0.034 * X2 + 0.517 * X3 + 0.675 * X4 \ (2)$$

Based on the results of a study of the influence of the same independent variables on the current account of Estonia, it can be concluded that all indicators are significant. The coefficient of determination (R-square) is close to 1 and is equal to 0.808, which means that the factors chosen explain the dependent variable by 80.8%. Thus, this model is also adequate, and there is a high dependence between the variables. In the model for Estonia, the t-test (2.47) below t is the statistics of selected independent variables. The value of the Durbin-Watson test for autocorrelation in the model is 1.62, so it can be concluded that there is no autocorrelation.

The influence of the budget deficit, inflation, unemployment, and GDP on the dynamics of the Estonian current account can be described using the following equation:

$$Y = -0.285 * X1 - 0.431 * X2 + 0.561 * X3 + 0.475 * X4 \ (3)$$

Thus, after analysing the equations for the two countries, it can be concluded that the budget deficit is directly related to the current account in Denmark: with an increase in the budget deficit, the current account also increases, however, in Estonia this dependence is the opposite. The direct link between the budget deficit and the current account of Denmark can be explained by the substantial expenditures of the country's budget for research and development, which further stimulate the national growth of exports of goods and services.

The second independent variable is the rate of inflation. In both countries, this indicator has a reverse effect on the dynamics of the current account. This can be explained by the fact that the decline in inflation in Estonia and Denmark and, consequently, the stability of prices for domestic goods are attractive to foreign consumers and corporations, which leads to an increase in exports.

The unemployment rate is directly related to the current account indicators in Denmark and Estonia. This dependence comes from the causal chain, which begins with a shock of fiscal consolidation and internal devaluation, which reduces domestic final consumption, stimulates a fall in investment and an increase in unemployment combined with a fall in inflation; declining domestic demand reduces imports and, given stable or growing exports, improves the current account and balances it [10].

It was also revealed that the direct dependence of GDP with the current account is characteristic both for Denmark and for Estonia. Thus, with the strengthening of the country's economy, the need for financing decreases, incomes grow, and savings with them, which leads to a strengthening of the current account. In addition, the trade balance is a key component in the GDP formula, i.e. when exports exceed imports, the trade balance improves, which leads to an increase in GDP, surplus and equilibrium of the current account.

The results of the regression analysis can be summarized as follows. All selected independent variables, namely: budget deficits, inflation, unemployment and GDP, are significant and affect the dynamics of the current account. For Denmark and Estonia, the most significant indicators were unemployment and GDP, which were directly related to the account for current operations. It can also be noted that in the model for Denmark, the least significant factor is the level of inflation, this is confirmed by the dynamics considered in this paper: when the current account fluctuates within the range of 2.26 – 25.34 billion USD, inflation ranged from 0.25 to 3.42%.

Conclusions. Successes of Denmark and Estonia and their development paths can serve as an example for Ukraine. The key elements of successful development are the introduction of a policy of deregulation, the use of a country's e-government system, the reduction of corruption to a socially safe level. One of the instruments of these neoliberal reforms was the Foundation for the Promotion of Entrepreneurship in Estonia.

In addition, it should be noted that according to the results of regression studies of the influence of indicators on the dynamics of the current account in Denmark and Estonia, recommendations can be made for Ukraine. Given the economic situation in Ukraine, the improvement in the dynamics of the country's current account indicator can be achieved in the following ways: a decrease in the rate of inflation; since Ukraine's trade balance is negative, unlike Denmark and Estonia (surplus since 2009) and consumption is not falling amid growing exports, reducing unemployment will have a positive impact on the current account; improvement of macroeconomic stability, an increase in the trade balance and, in particular, a GDP indicator, also greet the improvement in the dynamics of the current account.

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ПОРІВНЯЛЬНИЙ АНАЛІЗ ФІНАНСОВО-ЕКОНОМІЧНИХ ПОКАЗНИКІВ
ТА ДИНАМІКИ ЗОВНІШНІХ СЕКТОРІВ ЕСТОНІЇ І ДАНІЇ

Анотація. Статтю присвячено аналізу динаміки економічних і фінансових показників Данії та Естонії в період 2000-2017 рр. На основі аналізу даних виявлені закономірності і тенденції зміни міжнародних інвестиційних позицій досліджуваних країн. В роботі представлені результати економетричного аналізу впливу різних економічних показників на динаміку поточного рахунку країн. На основі досвіду вивчених країн, були запропоновані рекомендації для України.
Ключові слова: економічні показники, фінансові показники, порівняльний аналіз, платіжний баланс, міжнародна інвестиційна позиція, державний борг, Данія, Естонія, досвід для України.

СРАВНИТЕЛЬНЫЙ АНАЛИЗ ФИНАНСОВО-ЭКОНОМИЧЕСКИХ ПОКАЗАТЕЛЕЙ
И ДИНАМИКИ ВНЕШНИХ СЕКТОРОВ ЭСТОНИИ И ДАНИИ

Аннотация. Статья посвящена анализу динамики экономических и финансовых показателей Дании и Эстонии в период 2000-2017 гг. На основе анализа данных выявлены закономерности и тенденции изменения международных инвестиционных позиций исследуемых стран. В работе представлены результаты эконометрического анализа влияния различных экономических показателей на динамику текущего счета стран. На основе опыта изученных стран, были предложены рекомендации для Украины.
Ключевые слова: экономические показатели, финансовые показатели, сравнительный анализ, платежный баланс, международная инвестиционная позиция, государственный долг, Дания, Эстония, опыт для Украины.